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Food and Pharmaceutical Transformation in Islamic Jurisprudence: A Comparison with UAE Law

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Introduction

Modern technologies in the fields of food and pharmaceuticals represent some of the most significant challenges faced by contemporary societies in light of rapid advancements in science and discoveries. These technologies raise numerous jurisprudential questions concerning the permissibility or prohibition of certain food products and medicines that contain ingredients deemed forbidden by Islamic law, such as pork or its derivatives. In this context, Islamic jurisprudence plays a crucial role in addressing issues like the transformation (istihala) of forbidden ingredients, framing legal rulings that safeguard public health and social welfare. This also calls for the legal system to regulate these matters to ensure that modern technologies align with ethical and environmental values, while protecting humanity from their negative effects. This study aims to analyze the relationship between Islamic jurisprudence and modern technologies, with a focus on the position of Islamic scholars regarding contemporary issues such as genetic modification in food and the use of materials derived from forbidden animals in pharmaceutical manufacturing. It also examines the role of UAE law in regulating transformation and protecting human beings and the environment from the effects of modern technologies such as cloning and genetic engineering, while providing a comprehensive jurisprudential and legal perspective on reconciling science with Islamic law.

Study Objectives

1. **Analyzing the relationship between Islamic jurisprudence and modern technologies**: The study aims to explore the interaction of Islamic jurisprudence with recent scientific developments in the fields of food and pharmaceuticals, and the ethical challenges posed by technologies such as genetic engineering and modification.
2. **Identifying the core values of Islamic law in facing modern challenges**: The study seeks to highlight the fundamental Islamic values that should govern the use of modern technologies in food and pharmaceuticals, such as maintaining health, preserving the environment, and protecting human nature.
3. **Proposing jurisprudential guidelines to ensure balance between science and Islamic law**: The study aims to present contemporary jurisprudential strategies that balance scientific advancement in the fields of food and pharmaceuticals with the principles of Islamic law.
4. **Examining the role of UAE law in regulating transformation and protecting humans and the environment**: The study aims to analyze the role of UAE law in regulating modern technologies such as cloning and genetic

engineering, and in protecting humans and the environment from their negative ethical and environmental effects.

Research Questions

1. How can Islamic jurisprudence interact with modern technologies in the fields of food and pharmaceuticals, such as genetic modification and genetic engineering?
2. What are the jurisprudential rulings regarding transformation in the case of foods and medicines derived from forbidden ingredients?
3. Is it permissible to use modern technologies in the production of food and pharmaceuticals if such products affect human health or the environment?
4. How does Islamic jurisprudence address the ethical challenges posed by globalization in the food and pharmaceutical industries?
5. What are the core Islamic values that should govern genetically modified foods or pharmaceuticals containing forbidden ingredients?
6. What is the role of UAE law in regulating transformation and protecting humans and the environment from the effects of modern technologies, such as cloning and genetic engineering?
7. How does UAE law address the ethical implications of modern technologies in the fields of food and pharmaceuticals?

Previous Studies

Several researchers and scholars have addressed the topics of transformation and forbidden substances in the fields of food and pharmaceuticals from the perspective of Islamic jurisprudence. Some studies have explored the concept of istihala (transformation) in light of Islamic law, discussing cases where the consumption of certain forbidden foods may be permitted in cases of necessity, such as the use of medicines containing prohibited animal ingredients. Additionally, the jurisprudence of istihala has been discussed, focusing on the process by which a forbidden substance is transformed into a new substance that may become permissible, such as turning gelatin derived from pigs into a non-forbidden material. Moreover, some studies have examined the impact of modern technologies, such as genetic engineering, on ethical values in Islamic jurisprudence, particularly in relation to genetically modified foods and medicines containing forbidden animal-derived ingredients. However, these studies have not comprehensively addressed all the contemporary challenges associated with the use of modern technologies in food and pharmaceuticals, as well as their ethical implications. Furthermore, legal studies in the UAE regarding the role of law in regulating these technologies and their effects on the environment and human health have been insufficiently comprehensive, which is why this study seeks to cover these legal aspects.

Study Plan:

Chapter One: Istihāla (Transformation) and its Types and Effects in Islamic Jurisprudence

Section One: Definition of Istihāla: Linguistically, Terminologically, and its Types in Islamic Jurisprudence
Section Two: The Effects of Istihāla on Legal Rulings in Islamic Jurisprudence
Section Three: A Jurisprudential Study of Istihāla Cases in Food Products (e.g., Foods Extracted from Prohibited Materials)
Section Four: A Jurisprudential Analysis of the Application of Istihāla in Pharmaceuticals (e.g., Medications Containing Animal or Prohibited Ingredients)
Section Five: The Position of Islamic Jurisprudence on Drugs with Ingredients Derived from Unlawful Sources

Chapter Two: Addressing the Ethical Implications of Contemporary Challenges of Istihāla in Food and Medicine in Islamic Jurisprudence, Compared to UAE Law

Section One: The Impact of Genetic Engineering on Ethical Values in Islamic Jurisprudence, Compared to UAE Law
Section Two: Ethical Aspects of Using Cloning Technologies in Food and Pharmaceutical Industries in Islamic Jurisprudence and UAE Law
Section Three: Ethics of Using Unlawful Ingredients in Food and Pharmaceuticals in Islamic Jurisprudence and UAE Law
Section Four: Ethics of Consuming Food and Medicine in Light of Globalization Effects in Islamic Jurisprudence and UAE Law
Section Five: Ethical Balancing of Food and Medicine Between Islamic Jurisprudence and UAE Law.

Chapter One: Istihāla (Transformation) and its Types and Effects in Islamic Jurisprudence

This chapter examines the concept of Istihāla in terms of its linguistic and terminological definitions, as well as reviewing its various types and their effects within Islamic jurisprudence. The study of Istihāla has gained particular importance in the contemporary era, especially in the fields of food products and pharmaceuticals, which may contain prohibited ingredients. The chapter will address how Istihāla can change the legal ruling of a prohibited substance to permissible if it undergoes a transformation that alters its properties or components. Additionally, the applications of this concept in contemporary products will be analyzed, providing a clear jurisprudential perspective on how to deal with emerging issues in food and medicine.

Section One: Definition, Legitimacy, and Types of Istihāla in Islamic Jurisprudence
Section Two: Legal Rulings Resulting from Istihāla According to Its Types in Islamic Jurisprudence
Section Three: A Jurisprudential Study of Istihāla Cases in Contemporary Food Products
Section Four: A Jurisprudential Study of Istihāla Cases in Contemporary Therapeutic and Pharmaceutical Products

Section Five: The Position of Islamic Jurisprudence on Drugs with Ingredients Derived from Unlawful Sources

Section One: Definition, Legitimacy, and Types of Istihāla in Islamic Jurisprudence

First: Linguistic and Terminological Definition of Istihāla

A. Istihāla in Linguistic Terms:

The term "Istihāla" derives from the root word "ḥawla," which refers to change or transformation. It is said that anything that changes from being straight to being crooked has undergone "ḥawl" and "istihāl." This implies a shift or transition from one state to another.[1]

B. Istihāla in Terminology:

In legal terminology, Istihāla refers to the transformation of the essence of a forbidden or impure substance, where its physical composition changes into something fundamentally different in terms of name, characteristics, and properties. This concept is typically described in scientific terms as a complete chemical reaction, such as the conversion of oils and fats into soap or the breakdown of a substance into its different components. While such transformations may occur intentionally through scientific methods, they can also happen unintentionally through processes like pickling or burning. However, if the chemical reaction is partial, it is not considered Istihāla, and the substance remains in its original impure state, thus remaining prohibited for use.[2]

Second: The Legitimacy of Transformation (Istihala) in the Qur'an and Prophetic Tradition

A: Transformation (Istihala) in the Qur'an

The Qur'an does not address the concept of "transformation" (Istihala) directly, but there are verses that can be interpreted as referring to transformation or change, including:

- **Allah Almighty says**:
  "Then We created the sperm-drop into a clot, then We created the clot into a lump of flesh, then We created the lump of flesh into bones, and We clothed the bones with flesh. Then We caused him to grow into another creation. So blessed is Allah, the best of creators." (Qur'an 23:14)
  This verse refers to transformation in the development of the human embryo from sperm into a clot, then into a lump of flesh, and eventually into bones covered by flesh—illustrating the transformation of material from one state to another.

- **Allah Almighty says**:
  "O you who have believed, indeed, intoxicants, gambling, [sacrificing on] stone alters [to other than Allah], and divining arrows are but defilement from the work of Satan, so avoid it that you may be successful." (Qur'an 5:90)
  This verse forbids intoxicants (alcohol), but highlights that when wine turns

[1] **Abu al-Hasan Ali ibn Ismail ibn Sidah**: *Al-Muhkam wa al-Muhit al-Azam* (The Precise and the Greatest Surrounding), Dar al-Kutub al-Ilmiyyah, Beirut, 1st edition, 2000 CE, Vol. 4, p. 6.

[2] **International Islamic Fiqh Academy**: *Resolution on Transformation and Consumption in Additives in Food and Medicine, Rulings on Medical Developments*, Resolution No. 210 (22/6), March 22, 2015.

into vinegar (a pure form), it becomes permissible for use in food, despite its original prohibition as alcohol.

B: Transformation (Istihala) in the Prophetic Tradition (Hadith)

- **Narrated by Jabir ibn Abdullah**:
  The Prophet (PBUH) asked his family about condiments, and they replied, "We have only vinegar." He called for it, ate with it, and said, "How excellent is vinegar! How excellent is vinegar!" [3]
  This hadith illustrates the permissibility of consuming vinegar, even though it originates from wine, due to its transformation into a new substance.

- **Narrated by Ibn Abbas (RA)**:
  "When 'Umar heard that someone had sold wine, he said: 'May Allah curse such-and-such a person. Did he not know that the Messenger of Allah (PBUH) said: "May Allah curse the Jews, for Allah made fats unlawful for them, yet they rendered it lawful by melting it down and selling it."[4]
  This narration demonstrates how substances that undergo a transformation (such as fats being rendered unlawful for the Jews but made permissible by them through a transformation process) are understood in Islamic jurisprudence.

These examples from the Qur'an and Hadith illustrate the concept of transformation (Istihala) and its implications for Islamic rulings, especially concerning substances that change in nature, such as alcohol turning into vinegar.

• *"Abdullah ibn Abbas (RA) reported that the Messenger of Allah (PBUH) passed by a dead sheep and said: 'Why don't you benefit from its hide?' They replied, 'It is dead.' He said: 'The prohibition is only on eating it.'"*[5]

The takeaway from the aforementioned hadiths is that they indicate the occurrence of transformation (Istihala), but in some cases, the legal ruling is clarified regarding whether the transformation is permissible or not.

Third: Types of Transformation (Istihala) in Islamic Jurisprudence

Islamic scholars classify transformation (Istihala) into two main types:

1. **Complete Transformation (Istihala Kamilah):**
   This occurs when a forbidden substance is completely transformed into another substance with entirely different characteristics, to the point that no trace of the original forbidden substance remains. An example of this is the transformation of wine into vinegar, where vinegar becomes permissible after its transformation from the forbidden wine.

[3] **Abu al-Husayn Muslim ibn al-Hajjaj al-Qushayri al-Naysaburi**: *Sahih Muslim*, Dar Tawq al-Najah, Beirut, 1st edition, 1433 AH (2012 CE), Hadith No. 166, Vol. 3, p. 1622.

[4] **Abu Abdullah, Muhammad ibn Ismail ibn Ibrahim ibn al-Mughira ibn Bardizbah al-Bukhari**: *Sahih al-Bukhari*, Sultanate edition, Al-Matba'a al-Kubra al-Amiriyyah, Bulaq, Egypt, 1311 AH, Vol. 3, p. 81, *Chapter on the Skins of Dead Animals Before They Are Tanned*, Hadith No. 2221.

[5] **Abu Abdullah, Muhammad ibn Ismail ibn Ibrahim ibn al-Mughira ibn Bardizbah al-Bukhari**: *Sahih al-Bukhari*, Vol. 7, p. 96, *Chapter on the Skins of Dead Animals*, Hadith No. 5531.

2. **Partial Transformation (Istihala Juz'iyyah):**
   This occurs when there is a partial change in the components of a substance, without losing its original characteristics. In this case, the legal ruling on the substance may remain unchanged if a complete transformation has not occurred. An example of this is the transformation of part of a forbidden substance, such as wine, into a non-forbidden substance, but still retaining some of the forbidden characteristics.[6]

Second Section: Legal Rulings Arising from Transformation (Istihala) According to Its Types in Islamic Jurisprudence

First: Legal Rulings on Transformation According to Its Types Among Scholars:

The opinions of Islamic scholars regarding transformation (Istihala) according to its types are divided into three views, as follows:

The First View: Hanafi School[7]
The Hanafi scholars consider the complete transformation of a forbidden substance into another permissible substance to be lawful. In this case, the complete transformation of the forbidden substance into something else, differing in its essential characteristics, renders it permissible. An example of this is the transformation of wine into vinegar, where the chemical nature of the substance changes, making it non-intoxicating and non-harmful. Thus, the ruling shifts from prohibition to permissibility. If wine transforms into vinegar, it becomes permissible based on the legal maxim *"the transformation of substances"*.[8]

The Second View: Shafi'i School[9]
The Shafi'i scholars hold that transformation does not necessarily lead to permissibility in all cases, especially when the transformation is partial or does not completely alter the properties of the substance. In the case of partial or incomplete transformation, the ruling of prohibition remains on the substance. For instance, if wine is treated with heat or natural agents such that some of its characteristics are lost but its original properties (such as its intoxicating effect) remain, it cannot be considered entirely permissible. The legal ruling on the substance remains as it was.

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[6] **International Islamic Fiqh Academy**: *Resolution on Transformation and Consumption in Additives in Food and Medicine, Rulings on Medical Developments*, Resolution No. 210 (22/6), March 22, 2015.

[7] **Ibn al-Humam, Kamil al-Din, Muhammad ibn Abdul Wahid**: *Sharh Fath al-Qadeer 'ala al-Hidayah* (Commentary on Fath al-Qadeer on al-Hidayah), Al-Maktabah wa al-Matba'ah Musafah al-Babi al-Halabi & Sons, Cairo, 1st edition, 1970 CE, Vol. 1, p. 201.

[8] **Abu al-Abbas Ahmad ibn Yahya al-Wansharisi**: *Ithah al-Masalik ila Qawa'id al-Imam Malik* (Clarification of the Paths to the Principles of Imam Malik), Fadalah Press, Morocco, 1980 CE, p. 142.

[9] **Al-Bujayrimi, Suleiman ibn Muhammad ibn Omar**: *Al-Tajreed Li Naf' al-Abid* (The Purification for the Benefit of the Servants) = *Hashiyat al-Bujayrimi* (The Marginalia of al-Bujayrimi), Al-Halabi Press, no edition, 1950 CE, Vol. 1, p. 100.

Additionally, the transformation caused by natural change differs from that caused by artificial intervention. In some cases, if a forbidden substance transforms due to human or industrial intervention, it may not be considered a complete transformation unless the changes are entirely fundamental.[10]

This is in addition to the fact that transformation resulting from natural change differs from that resulting from industrial intervention. In some cases, if a forbidden substance transforms due to human or industrial intervention, it may not be considered a complete transformation unless the changes are entirely fundamental.

The Third View: Maliki[11] and Hanbali [12]Schools
They tend to believe that if a forbidden substance is completely transformed and its properties change, it is considered permissible. However, they emphasize the importance of thoroughly examining the case. In some exceptional situations where there is a necessity to benefit from forbidden substances, the use of such substances may be allowed if they have been transformed and changed in a way that ensures safety and eliminates harm.

Second: Rulings on Transformation According to Purity and Impurity Among Scholars

The scholars are divided into three opinions regarding the classification of transformation based on purity and impurity, as follows:

The First View: Shafi'i [13]and Hanbali [14]Schools
They believe that transformation results in the purification of the substance. For example, if wine transforms into vinegar, it becomes pure and permissible to use. Similarly, if a dead animal transforms into fertilizer, it becomes pure, and its parts are not considered impure.
This is because the default ruling on substances is permissibility unless there is valid evidence to the contrary. Similarly, the default ruling on all substances is

[10] **Al-Haytami, Ahmad ibn Muhammad ibn Ali ibn Hajar**: *Tuhfat al-Muhtaj fi Sharh al-Minhaj* (The Gift of the Needy in Explaining the Minhaj), Al-Maktabah al-Tijariyyah al-Kubra, Cairo, 1983 CE, Vol. 1, p. 288.

[11] **Al-Sawi, Abu al-Abbas Ahmad ibn Muhammad al-Khalwati**: *Bulugh al-Salik li-Aqrab al-Masalik*, also known as *Hashiyat al-Sawi 'ala al-Sharh al-Saghir* (The Gloss of al-Sawi on the Small Commentary), Dar al-Ma'arif, no edition, no date, Vol. 1, p. 384.

[12] **Al-Najdi, Abdul Rahman ibn Muhammad ibn Qasim al-Asimi al-Hanbali**: *Hashiyat al-Rawd al-Murbi' 'ala Sharh Zad al-Mustaqni'* (The Gloss on *Zad al-Mustaqni*), 1st edition, 1397 AH, Vol. 1, p. 349.

[13] **Abu al-Ma'ali, Abdul Malik ibn Abdullah ibn Yusuf ibn Muhammad al-Juwayni**: *Nihayat al-Matlub fi Dirayat al-Madhhab* (The End of the Request in Understanding the School), Dar al-Minhaj, 1st edition, 2007 CE, p. 26.

[14] **Al-Bahuti, Mansur ibn Yunus**: *Kashaf al-Qina' 'an al-Iqna'* (The Exposition of the Evidence from *al-Iqna*), edited and verified by a specialized committee in the Ministry of Justice, Ministry of Justice in the Kingdom of Saudi Arabia, 1st edition, 2008 CE, Vol. 1, p. 41.

purity unless there is valid evidence to prove their impurity. The prohibition of eating or drinking something does not constitute a legal ruling of its impurity.[15]

The Second View: Maliki School[16]
They hold a similar opinion but stipulate that in some cases, the transformation must be complete, meaning the substance must have completely changed from its original form.

The Third View: Hanafi School[17]
They generally agree with the Shafi'i school in considering that transformation removes the impurity of the substance, making it pure if its appearance changes.

Third Section: A Jurisprudential Study of Cases of Transformation in Contemporary Food Products

In this section, I will discuss the impact of transformation (Istihala) on food products derived from forbidden substances, such as alcohol or pork, in Islamic jurisprudence. This discussion will address how legal rulings on these products change in the event of a chemical or natural transformation that makes them completely different from the original forbidden properties. The views of scholars will be reviewed regarding how the transformation affects the permissibility or prohibition of these products in light of contemporary developments.

1. Food Products Containing Alcohol in Small Quantities

A - It is not permissible to consume food products that contain any amount of alcohol, no matter how small, especially those common in Western countries, such as certain chocolates, some types of ice cream (gelato, boza), and some carbonated drinks. This is based on the legal principle that "whatever intoxicates in large amounts is forbidden in small amounts,"[18] and there is no legitimate exception to permit their consumption.

B - The use of alcohol to dissolve certain substances that do not dissolve in water, such as colorants, preservatives, and the like, is permissible to a general extent due to

[15] **Abu al-Muzafar, Mansur ibn Muhammad ibn Abdul Jabbar ibn Ahmad al-Murwazi al-Sam'ani al-Tamimi**: *Qawati' al-Adillah fi al-Usul* (The Decisive Arguments in the Principles of Jurisprudence), edited by Muhammad Hasan Muhammad Hasan Ismail al-Shafi'i, Dar al-Kutub al-Ilmiyya, Beirut, Lebanon, 1st edition, 1999 CE, Vol. 2, p. 63.

[16] **Ibn Rushd, Abu al-Walid Muhammad ibn Ahmad ibn Muhammad ibn Ahmad ibn Rushd al-Qurtubi**: *Bidayat al-Mujtahid wa Nihayat al-Muqtasid* (The Beginning of the Scholar and the End of the One Who Seeks to Simplify), Dar al-Hadith, Cairo, no edition, 2004 CE, Vol. 1, p. 34.

[17] **Abu Muhammad, Abdullah ibn Ahmad ibn Muhammad ibn Qudamah**: *Al-Mughni li-Ibn Qudamah* (The Enricher by Ibn Qudamah), Al-Maktabah al-Qahirah, 1st edition, Cairo, Vol. 1, p. 37.

[18] **Al-Sabki, Ali ibn Abdul Kafi**: *Al-Ibhaj fi Sharh al-Minhaj* (The Elucidation in Explaining the *Minhaj*), on the *Minhaj al-Wusul ila 'Ilm al-Usul* by Al-Qadi al-Baydawi, Dar al-Kutub al-Ilmiyya, Beirut, 1984 CE, Vol. 3, p. 234.

the widespread necessity and the evaporation and dissipation of most of the added alcohol during food manufacturing, according to health and food safety regulations. Care should be taken to use alcohol-free alternatives when possible.

C - Food products derived from alcohol, such as juices or fermented products that may contain trace amounts of alcohol. In these cases, if the amount is minimal and does not affect the fundamental nature of the product, they may be permissible.[19]

2. Food products containing pork or its components:
For example, some cheeses made from rennet derived from pigs are forbidden, as pig rennet is impure and its consumption is prohibited. Similarly, some types of oil, fat, ghee, butter, cookies, chocolates, and ice cream that contain pig-derived ingredients are prohibited and cannot be consumed, considering the consensus of scholars on the impurity of pork and its prohibition, and because there is no necessity to consume these products.

3. Food products made from non-slaughtered or dead animals:
If the rennet is derived from a slaughtered edible animal, it is considered pure and lawful. However, if the rennet comes from an animal that has not been slaughtered properly or from a dead animal, the majority of participants consider it impure and unlawful, although some believe it to be pure.[20]

4. Food products made using genetic engineering:

Genetic modification is one of the techniques in molecular biology that allows for the alteration of genes to change the characteristics of living organisms. In the food context, this technique is used to produce new types of genetically modified crops or animals, including genetically modified foods (GMOs). These modifications aim to improve productivity, disease resistance, or even provide better nutritional properties.

Types of Genetic Modifications That Could Lead to Transformation:

A- Genetic Modification of Plants:
If the genes of a certain plant are modified to make it resistant to pesticides or able to withstand harsh climatic conditions, these modifications do not change the plant's fundamental nature. Therefore, its legal ruling remains as it is.

B- Genetic Modification in Animals:
If the genes of an animal (such as cows or poultry) are modified to improve their nutritional or production characteristics, some believe that genetic modification does not change the essence of the animal, but rather improves its attributes. Therefore, the legal ruling on such meat does not change if the animals are genetically modified from a lawful species.

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[19] **International Islamic Fiqh Academy**: *Decision on Transformation and Consumption of Additives in Food and Medicine, Rulings on Medical Innovations*, Decision No. 210 (22/6), March 22, 2015.

[20] **Al-Kasani, Ala' al-Din, Abu Bakr ibn Mas'ud**: *Bada'i' al-Sana'i' fi Tartib al-Shara'i'* (The Fundamentals of Craftsmanship in Organizing the Laws), 1st edition, Al-Matba'a al-Sharika al-Matbu'at al-Ilmiyya, Cairo, 1328 AH, Vol. 1, p. 63.

C- Genetic Modification by Adding Forbidden Materials:
In the case of modifying a food substance from a forbidden organism, such as adding pig genes to a specific plant or animal, this could be considered a transformation if the properties of the modified substance change to become pure. However, if the genetically modified substance retains properties prohibited by Sharia (such as pork), it remains forbidden even after modification. This is why scholars are divided into three opinions regarding genetic modifications that could lead to transformation:

1. **First Opinion: Permitting Genetic Engineering**:
   Some scholars believe that genetic engineering does not alter the essential nature of the food substance, and therefore does not affect its legal ruling. If the genetically modified food comes from lawful sources, it remains lawful. A contemporary example of this is the permissibility of using rennet produced through genetic engineering of the gene that produces rennet.[21]

2. Second Opinion: Prohibiting Genetic Engineering:
Some scholars believe that any intervention in genes could be considered an unnatural alteration of God's creation, and may violate ethical values in Islam. This is especially the case if genetic engineering involves significant changes to living organisms that could lead to unforeseen consequences. In this case, genetic modification may be considered a form of manipulation of creation, which is prohibited.[22]

3. Third Opinion: Health Safety Requirements:
Some jurists argue that the ruling on genetically modified materials should depend on ensuring their health safety. If these materials cause health harm or contain harmful substances, they are considered forbidden, regardless of whether they are genetically modified or not.[23]

The UAE Federal Law No. (9) of 2013 concerning plant genetic resources for food and agriculture, which aims to protect and preserve plant genetic resources for food and agriculture, limit their depletion, and ensure their sustainable use, as well as regulate their acquisition and circulation for agriculture and food security, states in Article (18) that a person who engages in the act of collecting plant genetic resources for food and agriculture without obtaining a permit shall be punished with imprisonment for a period not exceeding one year and a fine not

[21] **International Fiqh Academy:***Decision on Transformation and Consumption in Food and Drug Additives, Rulings on Medical Developments*, Resolution No. 210 (22/6), March 22, 2015.

[22] **Ibn al-Salah, Uthman bin Abd al-Rahman, Abu Amr, Taqi al-Din:**
Sharah Mishkil al-Waseet (Explanation of the Difficulties of the Mediator), Dar Knouz Ispilya for Publishing and Distribution, Saudi Arabia, 1st edition, 2011, Vol. 3, p. 640.

[23] **Al-Jubayri, Qasim bin Khalaf bin Fatah bin Abdullah bin Jubayr, Abu Ubaid:**
Al-Tawassut Bayn Malik wa Ibn al-Qasim fi al-Masail al-Lati Ikhtalafa Fiha min Masail al-Mudawwana (The Mediation Between Malik and Ibn al-Qasim in Issues They Disagreed Upon from the Issues of the Muwatta), Dar al-Diya, Egypt, 1st edition, 2005, p. 142.

less than (50,000) fifty thousand dirhams and not exceeding (500,000) five hundred thousand dirhams, or by either of these penalties.[24]

5. Genetically Engineered Meat (Cloned Meat):

Cloning refers to the process of creating a living organism by either transferring the nucleus from a somatic cell into an enucleated egg or by splitting a fertilized egg at a stage before tissue and organ differentiation.[25]

- If a halal animal (such as a cow or sheep) is cloned and its meat is produced, the cloned meat is generally considered to be identical to that of traditionally raised animals.
- However, if the cloned meat comes from a prohibited animal (such as pork), the legal ruling depends on whether the cloning process has resulted in a transformation (istihala) that changes the characteristics of the meat to the extent that it no longer retains its forbidden status.

Opinions of Scholars Regarding Food Products Made from Cloned Meat:

A. Hanafi and Shafi'i Schools: The Basic Principle is Permissibility with Conditions for Halal:

Hanafi and Shafi'i scholars believe that the general principle is permissibility unless there is explicit evidence of prohibition. Therefore, they tend to allow cloning of meat as long as the cells used for cloning come from a halal source, the animal is slaughtered according to Islamic law, and no forbidden or impure components are involved.[26]

Shafi'i scholars also stress the importance of considering any potential health or environmental harm. If there are health concerns, the principle of blocking harmful means (Sadd al-Dhara'i) or istihsan (juridical preference) may be applied, considering the potential risks.[27]

B. Maliki and Hanbali Schools: Caution and Prioritization of Preventing Harm Over Achieving Benefits:

[24] Federal Law No. (9) of 2013 on Plant Genetic Resources for Food and Agriculture: https://www.uaelegislation.gov.ae/ar/legislations/1159

[25] **Decision No. 94 (10/2), Regarding Human Cloning, Council of the International Islamic Fiqh Academy**: This decision was made during the 10th Conference of the Islamic Fiqh Academy held in Jeddah, Saudi Arabia, from June 3 to July 1997. For more details, you can refer to the official site of the International Islamic Fiqh Academy at: https://iifa-aifi.org/ar/2013.html.

[26] **Ibn al-Humam, Kamal al-Din, Muhammad bin Abdul Wahid**: *Sharh Fath al-Qadeer ala al-Hidayah*, (Explanation of Fath al-Qadeer on Al-Hidayah). Al-Maktabah wa Matba'ah Mustafa al-Babi al-Halabi & Sons, Cairo, 1st Edition, 1970, Vol. 9, p. 240.

[27] **Abu Yahya al-Saniki, Zakaria bin Muhammad bin Ahmed bin Zakaria al-Ansari, Zayn al-Din**: *Al-Ghurrar al-Bahiyah fi Sharh al-Bahjah al-Wardiyah* (The Glorious Insights in Explaining the Flowery Delight). Al-Matba'ah al-Maymaniyyah, No Date, Vol. 5, p. 10.

Maliki and Hanbali scholars take a more cautious stance towards cloned meat, particularly if the process involves unnatural interventions that may disrupt the natural order or pose health or ethical risks. Hanbali scholars apply the principle of "preventing harm takes precedence over acquiring benefits" (Dar' al-Mafasid Awwal min Jalb al-Masalih). Both schools believe that any potential health or environmental dangers justify prohibition, or at least, a cautious approach towards cloned meat.[28]

Contemporary Scholars' Opinions:

The International Islamic Fiqh Academy issued a resolution stating: "It is permissible according to Shari'ah to employ cloning and genetic engineering techniques in the fields of bacteria, microorganisms, plants, and animals, within the framework of Shari'ah guidelines, as long as it achieves benefits and prevents harms."[29]

Additionally, the Academy stated in another resolution: "It is permissible to use genetic engineering tools and techniques in agriculture and animal husbandry, provided that all necessary precautions are taken to prevent any harm, even in the long term, to humans, animals, or the environment."

The legal ruling concerning cloned meat is based on two main conditions:

1. The cells used for cloning must come from a halal source, and the animal must be slaughtered according to Shari'ah regulations.
2. The cloning process should not result in any significant health or environmental harm.

Most contemporary scholars recommend further medical and technical studies to ensure health safety before issuing a definitive ruling. Some scholars prefer exercising caution until a scientific and medical consensus is reached regarding the effects of animal cloning.[30]

An example of this permissible technology is seen at the Biotechnology Reproductive Technology Center in Dubai, where they preserve cells and clone distinctive breeds of camels with superior abilities in camel racing, or those that win beauty contests, produce large quantities of milk, or have high fertility. Cloning technology is also used to preserve endangered species, such as cloning Bactrian camels (two-humped camels), which are threatened with extinction, using eggs and surrogate mothers from single-humped camels.[31]

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[28] **Al-Shatibi, Abu Ishaq Ibrahim bin Musa bin Muhammad al-Lakhmi**: *Al-Muwafaqat* (The Concurrences), Dar Ibn Affan, 1st Edition, 1997, Vol. 5, p. 300.

[29] **Resolution No. 94 (10/2) on Human Cloning** Issued by the International Islamic Fiqh Academy, during its 10th session held in Jeddah, Saudi Arabia, from June 1997 to July 3, 1997.

For more information, visit:

[30] **Fiqh Seminar on "Shari'ah Ruling on Consuming and Marketing Cultured Meat, Insects, and Genetically Modified Foods of Animal Origin"**International Islamic Fiqh Academy, Organization of Islamic Cooperation (OIC), held on September 24-25, 2024, in Jeddah, Saudi Arabia.For more details, visit:

https://iefpedia.com/arab/?p=45568،

[31] **Camel Cloning in Dubai... Meeting the Needs of Races and Beauty Contests**

Published on May 25, 2023, in *Al Khaleej* newspaper.For more details, visit: **https://www.alkhaleej.ae/2023-05-25/**

Section Four: A Juridical Study of the Cases of Transformation in Contemporary Therapeutic and Pharmaceutical Products

In this section, I will examine the use of medications that contain components extracted from unlawful sources, such as forbidden animal-derived ingredients or prohibited chemicals, and how Islamic jurists have dealt with these medicines in light of the jurisprudential principles related to necessity and transformation (istihala).

I will present the views of scholars regarding the permissibility of using these medicines in cases of medical necessity, particularly when they are beneficial for treating certain diseases and no lawful alternative is available. Additionally, I will discuss how the jurisprudential principle of "necessity permits the forbidden" applies in this context, with a focus on the concept of transformation and its impact on the legal ruling of medications that contain prohibited or impure substances after processing.

First: Medications and Treatments Containing Alcohol

God's mercy is vast upon His servants, and He has made it easy for them to follow His law by considering cases of necessity and need, in accordance with legal principles that affirm that "necessity permits the forbidden." Among these principles is the view that alcohol is not impure (najis) in Islamic law, as the default state of things is purity.

A substance is only considered impure or forbidden if there is clear and valid evidence proving it. Therefore, the prohibition of consuming something does not necessarily mean it is impure in a legal sense, whether the alcohol is pure or diluted with water. Hence, there is no legal objection to using alcohol in the medical field as a disinfectant for skin, wounds, and instruments, to kill germs, or in the production of perfumes (such as cologne) where alcohol is used as a solvent for fragrance materials, or in creams that contain alcohol. However, wine (fermented alcohol) is not considered lawful for consumption.

Additionally, there is no legal objection to consuming medicines that contain a small percentage of alcohol, whether for preservation purposes or to dissolve medicinal substances that do not dissolve in water, as long as alcohol is not used as a sedative. This is permissible in cases where no lawful alternative is available. Therefore, relevant health authorities must determine these percentages based on scientific principles and pharmaceutical guidelines.[32]

Second: Medications and Treatments Containing Forbidden Animal-derived Ingredients

The jurisprudential principle "necessity permits the forbidden" allows the use of medications containing forbidden substances in cases of necessary treatment, provided that no lawful alternative is available and there is an urgent need to preserve health or life.[33]

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[32] **International Islamic Fiqh Academy**, *Resolutions of the Academy*, 22nd Session, Resolution on Transformation and Consumption in Food and Drug Additives, Resolution No. 210 (22/6), **https://iifa-aifi.org/ar/3988.html**

[33] **Al-Subki, Taj al-Din Abdul Wahab ibn Ali ibn Abdul Kafi**, *Al-Ashbah wa al-Nazair* (The Similarities and Equivalents), Dar al-Kutub al-Ilmiyyah, Beirut, 1st edition, 1991, Volume 1, p. 45.

A. Pig Urine

In his book *The Canon of Medicine*, Ibn Sina (Avicenna) mentions that pig urine can break up kidney and bladder stones and increase their secretion. He also notes that donkey urine is beneficial for treating kidney pains. Furthermore, human urine cooked with leeks helps alleviate uterine pain when used daily for five days. Ibn Sina also observed that human blood and pig blood share similarities, affirming that in some cases, pig blood could be used experimentally, although it is weaker than human blood.[34]

B. Pig Meat or Blood

Some medications contain components derived from pig meat or blood, such as certain capsules or liquid medicines. If these substances are processed in a way that removes their forbidden properties, they can be used.

C- Insulin Extracted from Pigs

The use of insulin extracted from pigs is prohibited except in cases of necessity. On the other hand, human insulin and its analogs prepared through genetic engineering are permissible for use.

D- Gelatin Extracted from Pigs

Gelatin extracted from pigs is used in COVID-19 vaccines to ensure the efficacy of the vaccine during transport and storage. According to the UAE Fatwa Council, a Muslim may receive the vaccine if this substance has undergone a transformation and has become a medicine. The council stated: "Sometimes, treatment may be obligatory, even though scholars have generally considered it recommended due to the uncertainty of its benefit. However, in contemporary medicines, where the benefit is certain or most likely, it is considered to be like other means of saving life, which an individual must take to preserve their life."[35]

E- Heparin Extracted from Pigs

The use of heparin extracted from pigs is prohibited except in cases of necessity. If modified to obtain low molecular weight heparin, this does not constitute a chemical transformation that would lead to a different ruling. However, heparin prepared through genetic engineering without using parts of the pig is permissible.[36]

F- Animal Enzymes and Hormones

The use of enzymes (such as trypsin) and hormones (such as insulin) extracted from animals, including pigs, is prohibited except in cases of necessity or if a halal alternative is available. Human insulin prepared through genetic engineering is

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[34] **Ibn Sina, Abu Ali al-Husayn ibn Abdullah**, *Al-Qanun fi al-Tibb* (The Canon of Medicine), 1431 AH, Volume 1, p. 413.

[35] UAE Fatwa Council Permits the Use of the "COVID-19" Vaccine and Calls for Cooperation with Governments to Ensure the Success of Vaccination Campaigns, Tuesday, 22 December 2020:

https://www.wam.ae/ar/article/hszrbhyn-

[36] **International Islamic Fiqh Academy, Resolutions of the Academy, 22nd Session, Resolution on Transformation and Consumption of Additives in Food and Medicine, Resolution No. 210 (22/6)**[Source: https://iifa-aifi.org/ar/3988.html]

permissible and is far more effective than animal-derived insulin in treating diabetes. It also helps in producing growth hormone from the gene that secretes it to treat children with growth hormone deficiency, which leads to short stature. Additionally, it can be used to prepare the missing substance in hemophilia patients, which impairs blood clotting and leads to bleeding, or contributes to the production of interferon, which is used to treat some cancers.[37]

Third: Pig Organs (Cellular Tissues) in Human Medicine

Cellular tissues extracted from pigs are used in various therapeutic applications in human medicine, as part of ongoing research to develop new treatments for certain incurable diseases. These applications include uses in the field of medical transplantation, tissue repair, and alternative organ therapies. Some of the most prominent therapeutic applications of pig cells are as follows:

A. Organ and Tissue Transplantation
Some cellular tissues from pigs are used in research to develop alternative organs for humans, such as:

- **Liver**: Pig liver cells are used to develop "artificial liver" systems that can help filter blood for patients suffering from liver diseases.
- **Pancreas**: Cells from pig pancreases are sometimes used to develop islet cells, which are implanted in patients with Type 1 diabetes.
- **Spleen**: In some cases, pig spleen tissues are used to treat immune system disorders or to develop alternative tissues in experimental research.
- **Kidney**: The first clinical procedure at the University of Alabama at Birmingham School of Medicine successfully transplanted genetically modified pig kidneys into a brain-dead person. The kidneys were sourced from pigs genetically modified with ten key genetic alterations, making the organs suitable for human transplantation. These pigs carry six additional genes from the human genome: four to help make their organs appear more familiar to the human immune system, and two to prevent blood clot formation.[38]

B. Applications in Tissue Surgery
Cellular tissues extracted from pigs are used in surgery to treat damaged tissues, such as:

- **Reconstructive Surgery**: In some cases, pig cellular tissues are used to replace damaged or missing tissues, such as skin or bone tissues.
- **Tissue Reconstruction**: In cosmetic and reconstructive surgeries, these tissues can be used to enhance wound healing, such as in skin grafts for burn victims or deep wounds.

[37] Seminar: Genetics, Genetic Engineering, Human Genome, and Gene Therapy: An Islamic Perspective, Held in Kuwait from 23–25 Jumada al-Akhirah 1419 AH, Corresponding to 13–15 October 1998 CE

[38] **For the article from Emirates Today:**"For the First Time... Successful Transplant of Pig Kidneys into a Human Body." Emirates Today Newspaper, January 20, 2022:**https://www.emaratalyoum.com/life/life-style/2022-01-20-1.1588641**

C. Pig Heart Valves
Pig heart valves are used in some cases as substitutes for human or artificial heart valves, particularly in heart surgeries, where damaged valves are replaced with those from pigs. These valves may be used for patients who have no other alternatives, such as elderly patients who may not be able to tolerate complex surgeries.[39]

D. Applications in Genetic Research and Genetic Engineering

- **Genetic Engineering of Pig Cells**: Some research is focused on modifying pig genes to make their cells more compatible with the human body, which helps reduce the immune rejection of pig organs. This research is in its early stages but may lead to new possibilities in pig organ transplantation.

E. Use of Cellular Tissues in Drugs and Regenerative Therapy

- **Regenerative Therapy**: Cells extracted from pigs are used in the treatment of damaged or diseased tissues by implanting the cells into human tissues with the aim of regenerating damaged cells, such as nerve or muscle cell regeneration.

F. Blood Research and Immunotherapy
Cellular tissues are used in some research aimed at treating immune diseases, where genetically modified pig cells are implanted to reduce the body's immune response to transplanted organs.

G. Applications in Skin Aesthetics

- **Cosmetic Products**: Some components derived from pig tissues are used in cosmetic products, such as anti-wrinkle creams, as it is believed that pig cells may contain beneficial properties for skin regeneration.[40]

The Issue from a Jurisprudential Perspective:
Islamic scholars have divided into two main groups regarding the contemporary medical applications of using pig products in human medicine:

1. The First Group:

The scholars (Hanafi, Maliki, Shafi'i, and Hanbali)[41] agreed on the prohibition of using pig-derived substances in all cases, whether in food or medicine. While there are some differences in interpreting certain details, the prohibition is considered general for all parts of the pig. Their evidence is as follows:

[39] **For the Islamic Fiqh Academy (International) resolution: International Islamic Fiqh Academy, Resolutions of the Academy, 22nd Session, Resolution on Transformation and Consumption in Additives in Food and Medicine. Resolution No: 210 (22/6)** https://iifa-aifi.org/ar/3988.html

[40] **or the article from Al-Madina Newspaper:**"The Islamic Fiqh Academy Seminar Approves the Use of Alcohol in Medicines and Some Pig Derivatives for Necessity." Al-Madina Newspaper, Published on February 13, 2015, at 02:52 KSA. ‹ https://www.al-madina.com/article/360950/

[41] Abu Malik Kamal Bin Al-Sayed Salem, *Sahih Fiqh al-Sunnah and its Evidence with Clarification of the Opinions of the Imams and Contemporary Fiqh Commentary: Nasser al-Din al-Albani, Abdul Aziz bin Baz, Muhammad bin Saleh al-Othaymeen*, Al-Tawfiqiya Library, Cairo – Egypt, 2003, Vol. 2, p. 338.

- **The Quran:**

  There are many verses in the Holy Qur'an that clarify the prohibition of dead meat, blood, and pork, stating that it is only permissible to benefit from these substances in cases of necessity, without exceeding the limits of necessity. Among these verses are:

- Allah the Almighty says:
  "He has only forbidden to you dead meat, blood, the flesh of swine, and that on which has been invoked the name of other than Allah; that which has been killed by strangling, or by a violent blow, or by a headlong fall, or by being gored to death; that which has been (sacrificed) on the altars (of idols); (forbidden is also) the division (of meat) by chance arrows: that is impiety. This day have those who reject faith given up all hope of your religion: yet fear them not but fear Me. This day have I perfected your religion for you, completed My favor upon you, and have chosen for you Islam as your religion. But if any is forced by hunger, with no inclination to transgression, Allah is indeed Oft-Forgiving, Most Merciful." (Qur'an, 5:3)

- Allah the Almighty also says:
  "Say: 'I do not find in what has been revealed to me anything forbidden for a food-eater to eat except that it be dead meat, or blood poured forth, or the flesh of swine; for that truly is impure; or that on which has been invoked the name of other than Allah; that which has been killed by strangling, or by a violent blow, or by a headlong fall, or by being gored to death; that which has been (sacrificed) on the altars (of idols); (forbidden is also) the division (of meat) by chance arrows: that is impiety.' But, if one is forced by necessity, without willful disobedience or transgression, your Lord is indeed Oft-Forgiving, Most Merciful." (Qur'an, 6:145)

B. The Sunnah (Prophetic Traditions):

The Islamic law prohibits the use of harmful or impure substances for medical treatment. Numerous Hadiths clarify this, including:

- The Prophet Muhammad (peace be upon him) said: "There should be neither harm nor reciprocating harm."[42]

- He also said: "Indeed, Allah has not made your cure in what He has forbidden to you."[43]

2. The Second Group:

[42] Ahmad ibn Muhammad ibn Hanbal: *Musnad Imam Ahmad ibn Hanbal*, Dar al-Hadith – Cairo, 1995 CE, Hadith number 2867, Volume 3, p. 276.

[43] Al-Bukhari, Abu Abdullah, Muhammad ibn Ismail ibn Ibrahim ibn al-Mughira ibn Bardizbah: *Sahih al-Bukhari*, al-Matba'ah al-Sultaniyah, at the Great Imperial Printing House, Bulak, Egypt, 1311 AH, Volume 7, p. 110, Chapter on Sweet Drinks and Honey, Hadith number 5613.

Some contemporary scholars, through Islamic legal councils, have permitted the use of pork-derived substances in cases of necessity, provided that there are no effective alternatives available. For instance:

- The International Fiqh Academy has stated that in cases of necessity, it is permissible to use parts or organs of pigs, such as heart valves, pancreatic cells, or liver cells, if there is a critical need for them and no alternatives are available.44

  Al-Azhar Center for Electronic Fatwa: It stated, "The basic ruling regarding the use of any part of a pig, such as transplanting its kidney into the human body, is its prohibition, except in cases of extreme necessity or a need equivalent to necessity. In such cases, it is permissible as an exception under two conditions: the first is the absence of a lawful alternative, and the second is that the harm resulting from the transplant is less than the harm of not performing it, even if this is based on a strong presumption, especially during and after the transplant procedure. This is in light of established medical knowledge about the risks of organ transplant surgeries, which require the use of immunosuppressive drugs and carry the possibility of the body rejecting the transplanted organ, in addition to numerous serious complications that may threaten the patient's health and life."[45]

Evidence of the Second Opinion:

- **Allah Almighty says:** *"He has only forbidden to you dead meat, blood, the flesh of swine, and that on which has been invoked the name of other than Allah, that which has been killed by strangling, or by a violent blow, or by a headlong fall, or by being gored to death; that which has been [sacrificed] on the altars [of idols]; [forbidden is also] the division [of meat] by chance arrows: that is impiety. This day have those who reject faith given up all hope of your religion: yet fear them not but fear Me. This day have I perfected your religion for you, completed My favor upon you, and have chosen for you Islam as your religion. But if any is forced by hunger, with no inclination to transgression, Allah is indeed Oft-Forgiving, Most Merciful."* (Quran 2:173), The critical point of the verse is the necessity of avoiding excess or transgression in the case of necessity.
- The legal maxim: *"Necessities make the prohibited permissible"*. Based on this principle, the prohibitions of Sharia can be waived in medical emergencies that require the use of pig organs or cellular tissues, especially in cases where no lawful alternatives are available, such as urgent medical conditions like organ transplants or treatment for incurable diseases. In such cases, the use of pig organs or tissues may be the only available option.

[44] International Islamic Fiqh Academy: *Resolutions of the Academy*, 22nd Session, Resolution on Transformation and Consumption of Additives in Food and Medicine, Resolution No. 210 (22/6), https://iifa-aifi.org/ar/3988.html.

[45] "Al-Azhar Global Center for Electronic Fatwas: The Ruling on Implanting a Pig Kidney in a Human Body, Contemporary Fatwas, October 25, 2021.https://www.azhar.eg/fatwacenter/fatwa/qadaya/ArtMID/7988/ArticleID/56954/

The Predominant Opinion: It seems to me that a reconciliation between the two opinions is possible: the use of pig parts is prohibited unless a medical necessity arises, based on the legal maxim *"Necessities make the prohibited permissible"*. This is supported by changes in modern medical practices. Contemporary scholars allow the use of pig organs in cases of medical necessity where no effective alternatives exist. However, since the first opinion that prohibits remains strong due to the clear religious texts prohibiting the use of pigs in all forms, the allowance for medical necessity may be prioritized in special cases, particularly with the advancement of medical science and the emergence of urgent needs.

Chapter Two: Addressing the Ethical Implications Arising from Contemporary Challenges in Food and Medicine Transformation in Islamic Jurisprudence Compared to UAE Law

This chapter aims to examine the ethical implications resulting from contemporary challenges in the fields of food and medicine in light of Islamic jurisprudence, with a comparison to UAE law. It will address various modern technologies such as genetic engineering, cloning, and the impacts of globalization, and explore how these challenges are managed within the framework of Islamic values. Additionally, the chapter will study the relationship between Islamic legislation and national laws, particularly with regard to the ethical impacts of these technologies.

Section One: The Impact of Genetic Engineering on Ethical Values in Islamic Jurisprudence Compared to UAE Law

Section Two: Ethical Aspects of Using Cloning Technologies in Food and Medicine Production in Islamic Jurisprudence and UAE Law

Section Three: Ethics of Using Unlawful Ingredients in Food and Medicine in Islamic Jurisprudence and UAE Law

Section Four: Ethics of Food and Medicine Consumption in the Context of Globalization's Influence in Islamic Jurisprudence and UAE Law

Section Five: Ethical Balancing of Food and Medicine Between Islamic Jurisprudence and UAE Law

Section One: The Impact of Genetic Engineering on Ethical Values in Islamic Jurisprudence Compared to UAE Law

This section addresses the analysis of the impact of genetic engineering technologies on ethical values in Islamic jurisprudence, with a focus on the extent to which these technologies align with Islamic principles related to the protection of human species

and environmental balance. The section aims to explore the legitimacy of genetic modifications and their effects on individuals and society within the framework of Islamic ethical values, emphasizing the need to maintain a balance between scientific progress and legal requirements.

A. The Impact of Genetic Modification on Environmental and Human Balance

In Islamic jurisprudence, "genetic modification" or "genetic engineering" is a sensitive issue that raises questions about its alignment with the concept of *fitrah* (the natural disposition) with which God created living beings. *Fitrah* in Islam refers to the natural order established by God, encompassing the delicate balance between creatures and their environments. From this perspective, some scholars argue that genetic modification may disrupt this natural balance if it exceeds the boundaries permissible by Islamic law, particularly when modifications result in fundamental changes to the essence of living organisms.

Genetic modifications can affect the genetic traits of living organisms, which may lead to changes in their biological or social functions. In certain cases, these changes could result in the emergence of hybrid or unnatural creatures that negatively impact biodiversity or disturb the ecosystem. As such, legal questions arise about whether genetic modification constitutes a violation of God's creation, which is to be preserved except in cases of necessity that serve the interests of humanity and society without compromising the environmental balance.

From a jurisprudential perspective, genetic modification that serves human interests without causing harm to the ecosystem or natural life is generally considered acceptable. In contrast, modifications made for commercial or personal purposes at the expense of the environment or living organisms are considered prohibited. Accordingly, the principle of *la darar* (do not harm) is one of the fundamental principles that should be considered when evaluating any genetic modification.[46]

B. Ethical Values Related to Divine Creation and Environmental Rights

In Islamic jurisprudence, environmental rights are considered fundamental values rooted in the concept of balance established by God between His creatures. Humans are viewed in Islam as *khalifah* (stewards) of the Earth, carrying the responsibility to maintain this balance and protect the environment from corruption. From this perspective, any intervention in the ecosystem, whether through genetic modification or other means, must align with Islamic values that respect divine creation and preserve the environmental equilibrium.

One of the core principles in this context is the prohibition of *fasad fi al-ard* (corruption on the earth), which forbids any action leading to the destruction or unjust exploitation of the environment. Accordingly, the use of technologies such as genetic engineering must adhere to Islamic legal guidelines that ensure no harm is done to biodiversity or the environment. Within this framework, genetic modifications should

[46] Organization of Islamic Cooperation: *Journal of the Islamic Fiqh Academy*, 19th Session, Issue 19, Volume 5, Jeddah, Volume 12, p. 1531.

be evaluated based on their ability to serve human interests without disturbing the cosmic balance, which is part of humanity's responsibility towards the Earth.[47]

C. The Ethical Impact of Genetic Modification in Food

Genetic modification in food is a contentious issue in Islamic jurisprudence. In Islamic law, food is considered one of the basic necessities of life, and thus, it must be pure and healthy. The production of genetically modified foods must meet specific legal standards, including ensuring that the food is halal, healthy, and safe.

1. **Halal and Pure**: Genetically modified products must remain halal according to Islamic law. This means that these foods must not contain any haram (forbidden) ingredients, such as pork or alcohol.[48]
2. **Health and Safety**: Preserving human health is one of the primary concerns in Islamic law, so genetically modified foods must not pose a health risk. It is forbidden for individuals to expose themselves to harm through food that could be harmful to their well-being.

3. Environmental Impact: The environmental impact of genetically modified foods must also be considered. If these foods cause pollution or negatively affect biodiversity, they are considered *fasad fi al-ard* (corruption on the earth), which is prohibited in Islam.[49]

D. The Legitimacy of Using Genetically Modified Foods in Light of Health Values, Human Disposition, and UAE Law:

In Islamic jurisprudence, the legitimacy of genetically modified foods is evaluated based on specific legal standards that include safety, health, and the permissibility of the ingredients. If genetic modification is carried out to improve the characteristics of food in a way that meets legitimate human needs, such as increasing productivity or disease resistance without altering the essential nature of the food, then such modifications may be permissible.

However, if it is found that genetic modification harms health, the environment, or alters the natural disposition of living organisms, it would be considered prohibited based on the legal principle *la darar wa la dirar* (do not harm and do not harm others). For this reason, it is emphasized that rigorous scientific research must be conducted to ensure the safety of genetically modified foods. If it is

[47] Ibn Kathir, Abu al-Fida Ismail ibn Umar: *Tafseer al-Quran al-Azim*, Dar Taybah for Publishing and Distribution, Riyadh, Saudi Arabia, 2nd edition, 1999, Vol. 1, p. 181.

[48] Abu Muhammad Ali ibn Ahmad ibn Sa'id ibn Hazm al-Andalusi al-Qurtubi al-Dhahiri: *Maratib al-Ijma' fi al-Ibadat wal-Mu'amalat wal-I'tiqadat*, Dar al-Kutub al-Ilmiyyah, Beirut, p. 136.

[49] Ibn Kathir, Imad al-Din Abu al-Fida Ismail ibn Umar: *Tafseer al-Quran al-Azim*, Dar al-Kutub al-Ilmiyyah, Beirut, Lebanon, 1st edition, 1998, Vol. 3, p. 85.

proven that they are safe and do not harm health or the environment, they may be accepted in cases of necessity or for the public benefit.[50]

As for the Effects of Genetic Engineering on Food and Medicine in UAE Law:

The United Arab Emirates adopts a strict legal framework regarding genetically modified foods, focusing on ensuring the safety of these products in line with health and environmental standards. The Ministry of Climate Change and Environment oversees the implementation of policies related to genetically modified foods to ensure their safety and suitability for human consumption. Genetically modified foods are evaluated according to precise standards, which include verifying the safety of these products in terms of public health and environmental impact. Among these legal provisions are the following:

1. **Environmental Protection Law (Federal Decree No. 24 of 1999)**: This decree emphasizes the need to protect biodiversity and safeguard the environment from violations that could affect the balance of the ecosystem. It includes practices that may harm genetically modified plants or organisms. The law also sets guidelines for the proper use of biotechnology and genetic technology, including agricultural and industrial applications.[51]

2. **Food Law (Federal Law No. 9 of 2013 on Plant Genetic Resources for Food and Agriculture)**: This law aims to protect and preserve plant genetic resources for food and agriculture, limit their depletion, and ensure sustainable use. It regulates the acquisition and trade of these resources to promote agriculture and food security.[52]

3. **Federal Law No. 9 of 2020 on Biosafety of Genetically Modified Organisms and Their Products**: This law, issued in 2020, deals with the biosafety of genetically modified organisms (GMOs) and their products. It aims to regulate activities related to the use of these organisms and ensure their safe handling. The law provides a legal framework and regulations for the circulation of GMOs and their products, while safeguarding public health and the environment from potential risks. The law also highlights the

[50] Al-Qarafi, Abu al-Abbas Shihab al-Din Ahmad ibn Idris ibn Abdul Rahman al-Maliki: *Sharh Tanqih al-Fusul*, United Artistic Printing Company, 1973, p. 86.

[51] **Federal Law No. (24) of 1999 concerning Environmental Protection and Development**
You can access the law from the official UAE government website :
https://uaelegislation.gov.ae/ar/legislations/1146/download

[52] **Federal Law No. (9) of 2013 concerning Plant Genetic Resources for Food and Agriculture**
The law can be downloaded from the official UAE government website: ‹
https://www.uaelegislation.gov.ae/ar/legislations/1159

importance of raising awareness and knowledge of modern biotechnology techniques, in compliance with international practices and related legislation. Article 4 of the law outlines rules for importing, transiting, and trading GMOs or their products. It prohibits the importation of these organisms or products without obtaining approval from the relevant authorities. If the importation is a first-time occurrence, approval from the concerned ministry is required. The law's executive regulations specify the conditions and guidelines for implementing these procedures. In general, the importation of genetically modified animals or their products, or any by-products containing modified components, is prohibited under Clause 1 of Article 3. Furthermore, the ministry must be notified about any genetically modified organisms or products that pass through the country in transit, with the executive regulations outlining the necessary procedures and conditions for such cases.[53]

4. **Federal Law No. (10) of 2015 concerning Food Safety**: This law aims to ensure the safety and suitability of food products through monitoring at all stages of the food chain to confirm their fitness for human consumption. It focuses on protecting consumer health by eliminating or minimizing risks associated with food, and preventing the circulation of harmful, adulterated, misleading, spoiled, or unsuitable foods. The law also ensures the safety and health of animal feed in circulation and facilitates the trade of food products. It sets rules and standards related to food safety in the UAE and outlines responsibilities associated with the production and distribution of genetically modified foods, including regulatory procedures to ensure that these foods do not contain harmful or offensive ingredients. The law also mandates periodic research to ensure the safety of products available in the market.

Based on these legislations, it can be said that the UAE takes into account the balance between scientific progress in the field of genetic engineering and the protection of human health, as well as the safeguarding of public health and the environment. This aligns with the principles and objectives of Islamic law, which emphasize the importance of preserving health and avoiding harm to humans, living beings, and the environment.

Section 2: Ethical Aspects of Using Cloning Techniques in Food and Medicine Production in Islamic Jurisprudence and UAE Law

Cloning techniques are among the most prominent scientific innovations that have sparked widespread debate on both ethical and legal levels, especially when it comes to their use in food and medicine production. In Islamic jurisprudence, the permissibility of these techniques is evaluated based on legal principles that prioritize

[53] **Federal Law No. (9) of 2020 concerning Biosafety of Genetically Modified Organisms and Their Products**،https://uaelegislation.gov.ae/ar/legislations/1448

preserving human health, animal rights, and preventing harm to the environment. These principles prohibit anything that causes harm without justified reason.[54]

On the other hand, UAE law seeks to regulate the use of these techniques in accordance with ethical and legal standards, providing safeguards for public health and the environment while ensuring the safety of products derived from cloned organisms. This section will examine the ethical dimensions of using cloning techniques in food and medicine production, in light of Islamic jurisprudence and UAE law.

First: The Ethical Impact of Cloning in Animal Production

A key question arises: Does cloning animals for use in food or medicine align with Islamic jurisprudential principles?

Cloning animals for food or medicinal purposes may be deemed permissible if it complies with Islamic ethical principles, including:

a. Halal and Pure: The cloned animals must be halal (permissible) for consumption and free from any defects that would make them unlawful according to Islamic law. The principles of halal food, which ensure the purity and permissibility of the animal, should be strictly adhered to in the cloning process.

b. Compassion for Animals: The cloning process should not cause harm or suffering to the animals. Islamic teachings emphasize the welfare of animals, and any practice that inflicts pain or distress on them would be considered impermissible. Ensuring the animals are treated with kindness and respect is a core consideration.

c. Human Harm: The cloning of animals must not cause harm to human health. Islamic law prioritizes the protection of human life and well-being. Any potential risks to human health that may arise from consuming cloned animals or using their products must be thoroughly investigated and mitigated.[55]

Psychological and Social Effects of Cloning Organisms

a. Psychological Effects: Cloning organisms, particularly animals, may lead to ethical dilemmas and internal conflicts. Individuals involved in the use of cloned organisms might experience guilt or anxiety about "interfering" with the natural process of reproduction and life. The idea of cloning living beings might raise concerns about the inherent rights of these organisms, causing discomfort regarding the manipulation of life for human purposes. This might create a broader psychological strain in society, questioning the moral implications of creating life artificially.

These ethical and psychological concerns reflect the broader challenges posed by biotechnological advances, especially in areas involving the sanctity of life and natural processes.

[54] **Federal Law No. (10) of 2015 concerning Food Safety، https://uaelegislation.gov.ae/ar/legislations/1161**

[55] UAE government portal: https://u.ae/ar-AE/information-and-services/health-and-fitness/research-in-the-field-of-health

B- Social Impacts:
The cloning of animals may lead to excessive reliance on technology to meet human needs, creating significant challenges for biodiversity. As cloning is increasingly used for the reproduction of animals for agricultural, commercial, or research purposes, humans may become more accustomed to cloning species to provide meat, pharmaceuticals, or even pets, rather than relying on natural processes. This dependence on technology for the reproduction of living organisms could reduce genetic diversity in cloned animals, making them more vulnerable to diseases or environmental changes that may harm them. Moreover, cloning could marginalize natural species that rely on diverse environmental reproduction, leading to a decline in their populations in the wild. Therefore, by disrupting the natural ecological balance, cloning may threaten the sustainability of wildlife and negatively impact overall biodiversity.[56]

Second: Cloning of Tissues or Organs in the Pharmaceutical Industry
Ethical Legitimacy of Cloning Human Tissues or Using Cloned Animal Materials in Pharmaceuticals:
A- **Cloning Human Tissues:**
This requires careful evaluation in accordance with religious values related to human dignity, and is considered impermissible if used for the creation of embryos for medical purposes.
B- **Using Cloned Animal Materials in Pharmaceuticals:**
It is necessary to ensure that the extracted materials are free from religious prohibitions and do not harm human health or the environment.

Can materials derived from cloning be used if they benefit in treating diseases?
Materials derived from cloning may be used in disease treatment, provided they are health-safe and free from any potential harm. If the materials extracted from cloning do not result in negative side effects on human health and contribute to the treatment of specific diseases or the enhancement of medical treatments, their use may be acceptable, especially if it serves the benefit of the patient and society in general.

However, it must be ensured that the process adheres to strict medical and ethical standards. Cloning should undergo rigorous testing to ensure that the resulting materials do not pose a health or environmental threat and contribute to achieving real therapeutic benefits. For example, if cloning is used to produce cells or tissues for the treatment of diseases like cancer or heart disease, the safety of these cells must be verified, ensuring that they can provide therapeutic benefits without causing any other negative side effects.[57]

Third: UAE Legal Aspects Regarding Cloning Techniques in Food and Pharmaceutical Industries:

UAE law seeks to balance scientific advancements in cloning techniques with considerations for protecting human beings, the environment, and public health by implementing strict regulations for the use of cloning in the food and pharmaceutical industries. Key laws addressing this issue include:

[56] **ecture on Cloning and Its Social Impacts, Additional Issue.** (2023, January 26). *Emirates News Agency (WAM)*. Retrieved from https://www.wam.ae/ar/article/hsylvy3h-12-

[57] **Organization of Islamic Cooperation**: "Journal of the Islamic Fiqh Academy of the Organization of Islamic Cooperation," Jeddah, Issue 19, Vol. 4, p. 121.

- **Federal Decree-Law No. (4) of 2016 on Medical Liability:** Article (12) of this law prohibits human cloning procedures, including research, experiments, and applications aimed at cloning a human being. It also prohibits any medical research or experiments on humans without prior consent, provided that the consent is documented in writing in accordance with the procedures and permits defined in the executive regulations and consistent with the established conditions.[58]
- **Federal Decree-Law No. (49) of 2023 on Regulating the Use of the Human Genome:** Article (16) prohibits the use of human genes or the human genome in any manner that aims to alter the genomic structure of individuals, whether for enhancing their lineage, purifying the human race, or for any other purposes that conflict with this decree. However, this prohibition is exempted if the aim of modifying the genomic structure is for the treatment or prevention of diseases. This law aims to ensure the safe use of the human genome and prevent its exploitation for any purposes that violate fundamental human rights, such as respecting dignity and privacy. It also seeks to promote public health through the diagnosis and prevention of genetic diseases prevalent in society, while supporting scientific research related to the human genome. This includes protecting the confidentiality of genetic data and using the genomic data of the country's citizens to establish the "UAE Reference Genome" and expanding its applications within the permissible areas under current legislation. Regarding penalties, Article (38) stipulates imprisonment and fines ranging from 100,000 AED to 300,000 AED, or either of these penalties, for those conducting research or clinical studies related to human genes or the human genome, or their applications on humans, aimed at human cloning or altering human characteristics of individuals or embryos, or those that could lead to creating genetically modified organisms that pose a risk to humans or the environment.[59]

Chapter Three: Ethics of Using Illicit Ingredients in Food and Medicine in Islamic Jurisprudence and UAE Law

The issue of using illicit ingredients in food and medicine is a complex topic that intertwines legal, ethical, and religious considerations. In Islamic jurisprudence, the focus is placed on the principles of *halal* (permissible) and *haram* (forbidden), with allowances made for cases of necessity where prohibited substances may be used in medical emergencies. On the other hand, UAE law provides a strict regulatory framework to ensure the safety of food and medicine while protecting public health, including the monitoring of ingredients used in pharmaceuticals and food products. This chapter examines the ethical aspects of using illicit ingredients in these fields by analyzing Islamic jurisprudence and the relevant UAE laws, emphasizing the balance between medical necessity and religious and legal considerations.

[58] **Federal Decree-Law No. (4) of 2016 on Medical Liability**: https://uaelegislation.gov.ae/ar/legislations/1192

[59] **Federal Decree-Law No. (49) of 2023 on Regulating the Use of the Human Genome**: https://uaelegislation.gov.ae/ar/legislations/2195

First: Ethical Principles in Islamic Jurisprudence for the Pharmaceutical Industry

In Islamic jurisprudence, adhering to the rulings of Sharia (Islamic law) in the context of food, medicine, and treatment is of paramount importance. This ensures that the food and medicine consumed are *tayyib* (pure) and lawful. Some of the key principles in this area include:

1. **Necessity Permits the Forbidden:** In cases of necessity that require the use of prohibited substances, it is allowed to consume these materials only to the extent of the necessity, provided there is no lawful alternative available.
2. **The Default of Permissibility:** The default ruling for things is permissibility and purity unless there is clear evidence from Sharia that proves it to be prohibited. This means that unless proven otherwise, substances and ingredients are considered lawful.
3. **Avoidance of Illicit Ingredients:** It is forbidden to consume food that contains alcohol or ingredients derived from pigs, such as gelatin made from pork. For example, chocolate or ice cream containing alcohol or food products containing pig fat are considered unlawful (*haram*).[60]
4. **Use of Alcohol or Wine-based Ingredients:** If food contains a minimal amount of alcohol for the purpose of manufacturing products that are insoluble in water, it is permissible to consume in cases of necessity. However, using alcohol-free alternatives is preferred.
5. **Gelatin:** The issue of gelatin derived from pigs requires further jurisprudential research and consideration. Some scholars hold that if a material undergoes a significant chemical transformation, it may alter its ruling. Therefore, the status of such ingredients, if they change in a way that no longer resembles their original form, may be reevaluated in light of Islamic jurisprudence.[61]

This overview of the ethical principles demonstrates the importance placed on ensuring that food and medicine adhere to the principles of Sharia, while allowing for flexibility in cases of necessity, ensuring the well-being of the individual without compromising religious laws.[62]

Second: Transformations in the Use of Prohibited Ingredients in Medicine

Chemical changes that may occur to prohibited animal ingredients (such as gelatin derived from pigs) represent a complex jurisprudential issue. In Islamic jurisprudence, the concept of *istihalah* (transformation) is discussed, which refers to a fundamental

[60] **Al-Tamimi, Abu al-Muthaffar, Mansour bin Muhammad bin Abdul-Jabbar al-Marwazi al-Sam'ani** (1999). *Qawa'id al-Adillah fi al-Usul* (The Rules of Evidence in Jurisprudence). Dar al-Kutub al-Ilmiya, Beirut, Lebanon, 1st ed., Vol. 2, p. 63.

[61] **Al-Tabari, Muhammad bin Jarir bin Yazid bin Kathir bin Ghalib al-Amili, Abu Ja'far** (n.d.). *Ikhtilaf al-Fuqaha'* (Differences of Jurists). Dar al-Kutub al-Ilmiya, p. 82.

[62] **Al-Shawkani, Muhammad bin Ali bin Muhammad bin Abdullah al-Yemeni** (1987). *Al-Durari al-Mudhiyah Sharh al-Durar al-Bahiyyah* (The Brilliant Pearls: Explanation of the Brilliant Jewels). Dar al-Kutub al-Ilmiya, 1st ed., Vol. 2, p. 317.

change in the nature of a substance, making it unrecognizable as the original prohibited material.

- *Istihalah*: Some scholars believe that a complete chemical transformation of the substance makes it permissible for use, while others argue that any chemical change that does not alter the nature of the prohibited substance keeps it governed by the original prohibition.

Third: Ethical Analysis of Using Animal-Derived Components from Prohibited Animals in Pharmaceutical Manufacturing

When it comes to medications containing animal-derived components from prohibited animals, such as gelatin or tissues extracted from forbidden animals, several ethical considerations must be taken into account:

- **Necessity**: If the prohibited substances are used to treat an incurable disease or in a medical procedure necessary to save a life, their use may be deemed permissible according to the principle of *"necessity permits the prohibited" (Al-Darurat Tubih al-Mahzurat)*.
- **Benefit in Emergency Situations**: The medical benefit must be clear and confirmed, and the medication should be used only when alternatives are unavailable.
- **Transparency and Disclosure**: It is crucial to ensure complete transparency with patients about the ingredients in medications and the prohibited substances that may be present, ensuring patients make informed decisions based on full knowledge of the matter.

Fourth: Ruling on the Use of Medicines Containing Prohibited Ingredients in Cases of Necessity

In Islamic jurisprudence, the use of medicines containing prohibited ingredients is allowed in situations of acute medical necessity, provided no alternatives are available. The permissibility of this usage is determined through:

- **Necessity Permits the Prohibited**: If a patient's life is at risk or their health is in danger due to the unavailability of alternatives, the use of medications containing prohibited substances, such as gelatin from pigs, is permissible.

B- Ethical Guidance for Patients: Doctors should guide patients on available options and halal alternatives if they exist, ensuring that patients are informed about the prohibited ingredients in medications.

C- Consulting Jurists: In complex medical cases, it is advisable to consult with religious bodies such as the International Fiqh Academy or jurists to accurately determine the appropriate religious stance on the matter.[63]

Fifth: Legal Aspects in the UAE Related to the Use of Prohibited Ingredients in Food and Medicine

[63] **Organization of Islamic Cooperation**: *Magalat Majma' al-Fiqh al-Islami al-Tabe' li-Munazzamat al-Mu'tamar al-Islami*, Jeddah, Issue 19, Vol. 4, p. 165.

In the UAE, there are laws regulating the use of prohibited materials in the production of food and pharmaceuticals, which prohibit practices that could harm public health or the environment:

- **Federal Law No. (8) of 2019 on Pharmaceutical Products, Pharmacy Practice, and Pharmaceutical Establishments**[64]:
  Article (11) of this law stipulates that the Ministry has the authority to suspend the circulation of a pharmaceutical product when there is a need to verify information suggesting that the product is of poor quality, unsafe, or ineffective. The concerned committee is required to make a decision to withdraw the product or specific batches within thirty days of the suspension. This is applicable in specific cases, including:
    - If the product is proven to be adulterated or does not meet the approved safety, quality, or effectiveness standards.
    - If it is determined that the product is toxic or harmful when used according to the manufacturer's recommended conditions.
    - If unexpected or severe side effects or adverse reactions occur after the product is used as recommended.[65]

Chapter Four: Ethical Considerations of Food and Medicine Consumption in the Context of Globalization in Islamic Jurisprudence and UAE Law

In light of globalization and its effects on consumption patterns, the ethics surrounding food and medicine consumption become increasingly complex. This section will explore how these global influences interact with Islamic jurisprudence and UAE law, balancing the need for international cooperation in health and safety standards with the preservation of Islamic ethical principles.

This section addresses the ethical considerations surrounding the consumption of food and medicine in light of the increasing impacts of globalization on Muslim communities, with a focus on Islamic jurisprudence and UAE law. The spread of globalization and technological advancements in production and distribution have created new opportunities; however, they have also raised significant challenges related to food and health security. In this context, Islamic jurisprudence views the consumption of food and medicine as part of an individual's responsibility toward both themselves and society, emphasizing the concepts of halal (permissible) and haram (forbidden), along with moderation in consumption. Additionally, UAE law highlights the importance of safeguarding public health and ensuring the quality of

[64] **Federal Law No. (8) of 2019**: *Federal Law No. (8) of 2019 concerning Medical Products, the Pharmacy Profession, and Pharmaceutical Establishments*, available at: https://uaelegislation.gov.ae/ar/legislations/1426.

[65] **Federal Law No. (8) of 2019**: *Concerning Medical Products, the Pharmacy Profession, and Pharmaceutical Establishments*, available at: https://uaelegislation.gov.ae/ar/legislations/1426.

food and medical products, while considering the ethical values of justice and equality in access to these resources.

First: Ethical Challenges Arising from Globalization in the Food Industry

A. The Impact of Globalization on the Consumption of Genetically Modified Foods: Globalization has significantly impacted the food industry by facilitating global trade and enhancing the use of modern technologies such as genetic engineering. This transformation has raised both ethical and jurisprudential challenges for countries around the world regarding the permissibility of genetically modified (GM) foods.

1. **The Spread of Genetically Modified Foods**: Genetically modified food has become part of the global food supply chain, which may result in the inclusion of prohibited ingredients in certain foods, such as forbidden animal tissues or additives that are prohibited in Islamic law.
2. **Economic Pressures**: Globalization places pressure on countries to import genetically modified foods, particularly within the framework of trade agreements or due to the relative lower cost of these products compared to non-modified alternatives.[66]

3. Jurisprudential Challenges:
In Islamic jurisprudence, there is a difference of opinion regarding the permissibility of genetically modified foods. Some scholars argue that it is prohibited to consume genetically modified foods if they contain forbidden ingredients, while others contend that genetic modification, if it does not alter the original nature of the components, may be permissible.

4. Future Directions:
Some scholars advocate for imposing restrictions on the importation of genetically modified foods containing prohibited ingredients. Additionally, there is a call to enhance research on how to address this issue in accordance with Islamic law, emphasizing the importance of public awareness regarding the health and legal risks associated with consuming these foods.[67]

Second: The Ethical Implications of Globalization on Drug Consumption

A. Negative Impacts of Globalization on the Use of Drugs with Prohibited Ingredients: The increased cross-border trade in pharmaceuticals due to globalization has contributed to the rapid spread of drugs originating from countries that may not adhere to Islamic legal standards.

1. **Diversity of Drug Sources:**
   With globalization, drugs are manufactured and imported from various parts of the world, making it more difficult to verify the ingredients of medications.

[66] "International Standards for the Trade of Genetically Modified Foods in the UAE, Emirat Al-Youm Newspaper, April 25, 2010" https://www.emaratalyoum.com/local-section/health/2010-04-25-1.236220

[67] "Report on the Role of Genetically Modified Crops in Global Food Security"https://ecssr.ae/ar/research-products/reports/2/197459

Some drugs may contain prohibited animal-derived components or substances that are not permissible under Islamic law.

2. **Non-Compliance with Islamic Law:**
   Some imported drugs may contain prohibited animal-derived ingredients or have been produced using methods that do not align with Islamic legal principles, further complicating the distinction between permissible and impermissible drugs.

3. Cultural and Commercial Invasion:
Globalization not only affects the flow of pharmaceuticals but also impacts consumer culture. Many Western medicines may contain prohibited ingredients, and with globalization, the acceptance of these medicines could become widespread, even though they may contain substances that are forbidden in Islamic law.[68]

4. The Need for Jurisprudential Rulings on New and Emerging Issues:
There has been an increasing need to establish rulings for emerging jurisprudential issues, ensuring that imported medicines comply with Islamic principles. This is crucial to safeguard the health of Muslims in light of the growing global trade in pharmaceuticals.

B. Ethics of Relying on Imported Medicines from Other Countries:

1. **Dependence on Imported Medicines:**
   Through globalization, many countries have become dependent on imported medicines, which may contain prohibited animal-derived ingredients. This leads to the illicit consumption of medicines in Muslim communities and raises questions about the government's responsibility to regulate these drugs.

2. **Prohibited Animal-derived Medicines:**
   A major example includes drugs that contain prohibited animal-derived ingredients, such as gelatin derived from pigs. Although these drugs may be cheap and readily available, their use contradicts Islamic values, underscoring the need for accurate information regarding the composition of medications.

3. **Ethics of Using Imported Medicines:**
   Countries should tighten regulations on imported medicines and raise awareness among doctors and consumers about the importance of verifying the ingredients of medications to ensure they comply with Islamic law. Additionally, alternative treatments that do not contain prohibited ingredients should be promoted.

4. **Possibility of Substitution:**
   From an ethical standpoint, it is encouraged to provide alternative treatments in cases where medicines contain prohibited ingredients, to avoid the use of drugs containing forbidden substances if there is another available remedy.

Globalization presents significant challenges for Muslim communities in the fields of food and medicine, particularly concerning the use of foods and drugs

[68] Abu al-Ma'ali, Abdul Malik bin Abdullah bin Yusuf bin Muhammad al-Juwaini: *Al-Burhan fi Usul al-Fiqh* (The Proof in the Fundamentals of Islamic Jurisprudence), Dar al-Kutub al-Ilmiyyah, Beirut – Lebanon, 1997, Vol. 1, p. 134.

that contain prohibited ingredients. With the expansion of global trade, there are economic pressures that require a balance between maintaining Islamic values and selecting safe food and medicine. Therefore, it is essential to enhance religious and social awareness and work on developing regulations that ensure consumer safety from both a health and legal standpoint.

To ensure the activation of the pharmaceutical control system in the UAE, the Ministry of Health and Prevention established the "Tameen" platform in September 2020.

The "Tameen" platform is designed to track and monitor the stages of pharmaceutical product manufacturing to ensure the supply of these products to healthcare facilities in the country. The platform contributes to monitoring medicines from the production stage until they reach patients, enhancing the efficiency of the healthcare and smart services provided by the Ministry. Additionally, the platform works to combat counterfeit, expired, or unauthorized medical products.

The "Tameen" platform enables regulatory authorities to prevent the entry of counterfeit or unauthorized drugs into the country by verifying the 2D serial code "GS1" using a secure website or mobile application. The platform also allows consumers to verify the validity and reliability of medications when purchasing them via the secure app, helping them avoid unauthorized or counterfeit drugs and providing clear visibility regarding the sources and validity of the products through scanning the serial code.[69]

This legislation ensures a balance between scientific advancement and Islamic principles, contributing to safeguarding individuals' health and protecting them from harmful or unlawful products.

Section Five: Ethics of Balancing Food and Medicine Between Islamic Jurisprudence and UAE Law

In light of scientific advancements in the fields of food and medicine, Islamic jurisprudence faces new challenges in applying legal principles to modern technologies such as genetic engineering and genetic modification. Dealing with these technologies requires a balance between scientific progress and the legal principles aimed at preserving public health and societal interests. Islamic jurisprudence relies on principles such as public welfare and the preservation of necessities, such as life and health, which allows for the use of technologies that contribute to the treatment of diseases, provided they achieve public benefit without causing harm.[70]

For technologies such as genetic modification or prohibited substances, their use may be permissible in cases of necessity according to the rule of "necessities permit the

[69] The "Tameen" platform was launched in September 2020 by the Ministry of Health and Prevention: https://u.ae/ar-ae/information-and-services/health-and-fitness/drugs-and-controlled-medicines

[70] Al-Iraqi, Wali al-Din Abu Zur'ah Ahmad bin Abdul Rahim: *Al-Ghayth al-Hami' Sharh Jam' al-Jawami'* (The Pouring Rain: Explanation of Jam' al-Jawami'), Dar al-Kutub al-Ilmiyyah, 1st Edition, 2004, p. 659.

prohibited" if there is a pressing need, such as the treatment of incurable diseases. The rule "hardship brings ease" is also applied to relax rulings in cases of hardship.

On the other hand, UAE law regulates these issues by ensuring the safe use of modern technologies in food and medicine while considering the protection of public health and the environment, reflecting a balance between scientific progress and ethical values.

The United Arab Emirates follows a balanced approach to dealing with technological developments in food and medicine, ensuring the health and safety of the community in accordance with Islamic values. UAE law includes several provisions that focus on consumer protection and product quality, especially in the fields of food and medicine. Some of these key provisions include:

1. **Protection of Public Health:**
   The law requires that all food and medical products undergo evaluation and oversight to ensure their quality and safety.

2. **Certification of Modified Materials:**
   The law mandates that any genetically modified product or product containing prohibited materials must undergo thorough inspection to ensure it does not affect human health.

3. **Transparency and Disclosure:**
   The law stipulates that companies must be transparent about the ingredients and production methods of their products, including the use of techniques such as genetic modification or substances derived from prohibited sources.

4. **Consumer Protection Law:**
   Under the provisions of the Consumer Protection Law, food establishment managers have several duties, primarily ensuring the application of food safety systems approved by the state, based on risk analysis. They must guarantee the health and safety of food and its suitability for human consumption. They are also required to facilitate the tasks of specialized staff during inspections and audits and provide the necessary documented records reflecting compliance with applicable laws and regulations. Additionally, they must train and qualify their employees in food health and safety standards and ensure the medical fitness of staff. Finally, they must report to the ministry and relevant authorities any food under their supervision that may pose a risk to consumer health.[71]

[71] Federal Law No. (10) of 2015 Concerning Food Safety: https://uaelegislation.gov.ae/ar/legislations/1161

Conclusion

The food and pharmaceutical industries are vital sectors facing increasing jurisprudential and ethical challenges due to rapid scientific advancements, particularly regarding the use of modern technologies such as genetic engineering, genetic modification, and cloning. In this context, the role of Islamic jurisprudence emerges in addressing these challenges by applying the principles of Sharia to ensure the well-being of individuals and society. This research has addressed the concept of the transformation of prohibited substances in food and medicine, their impact on Islamic jurisprudence, and the ethical aspects associated with these modern technologies. Additionally, the role of UAE law in regulating the use of these technologies in accordance with Sharia principles and objectives was emphasized.

Findings

1. **Definition of Transformation and Its Impact in Islamic Jurisprudence:**
   The research emphasized that transformation (istihala) refers to a fundamental change in the substance such that the prohibited characteristics are lost, allowing its use in certain cases, such as gelatin derived from pigs after chemical transformation.

2. **Ethical Challenges of Transformation in Food and Medicine:**
   The study addressed the ethical challenges associated with the use of modern technologies like genetic modification and genetic engineering in food and medicine production, and the necessity of reconciling these technologies with the values of Sharia.

3. **Islamic Jurisprudence's Stance on Prohibited Medicines:**
   The study found that Islamic jurisprudence permits the use of medicines containing prohibited ingredients in cases of medical necessity according to the principle "necessity permits the prohibited," while emphasizing the need to evaluate the necessity and available alternatives.

4. **Ethics of Food and Medicine Consumption in the Context of Globalization:**
   The study highlighted the impacts of globalization on food and medicine consumption, stressing the importance of achieving a balance between Sharia principles and global economic and technological factors in consumption practices.

5. **The Exceptional Role of UAE Law:**
   UAE law stands out for its exceptional role in regulating the use of modern technologies in food and medicine. The law has established regulations that align with Sharia principles, including strict controls on the import and trade of genetically modified products and medicines containing prohibited ingredients. It also contributes to creating a legal environment that balances scientific progress with the protection of public health.

Recommendations

1. **Developing Contemporary Islamic Jurisprudence:**
   There is a need to develop contemporary jurisprudential interpretations that align with modern scientific challenges, ensuring that legal rulings are

compatible with technological advancements in the food and pharmaceutical industries.

2. **Establishing Procedures in Accordance with Sharia Principles and Objectives:**
   It is essential to implement clear regulatory procedures that align with the objectives of Islam to ensure that modern technologies are used in ways that protect the interests of the Muslim community while respecting Sharia values.

3. **Enhancing Religious Awareness:**
   Efforts should be intensified to guide Muslim consumers toward healthy and safe options, clarifying the legal rulings related to the safe use of genetically modified products and prohibited medicines.

4. **Strengthening Cooperation Between Jurisprudence and Science:**
   Strengthening cooperation between jurisprudential and scientific institutions is crucial for exchanging knowledge and offering jurisprudential solutions backed by accurate scientific research, contributing to creating a healthy and safe environment for society.

5. **Continuing the Role of UAE Law:**
   The exceptional role of UAE law in regulating the use of modern technologies in food and medicine should be enhanced, with an emphasis on the need for flexible and comprehensive legislation that keeps pace with scientific advancements while respecting ethical and Sharia values.

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