



# ISTIHALAH APPLICATIONS FROM A SCIENTIFIC VIEWPOINT

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**European Halal Development Agency (EHDA)**

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# PARAMETERS FOR FOOD

يَا أَيُّهَا النَّاسُ كُلُوا مِمَّا فِي الْأَرْضِ حَلَالًا طَيِّبًا وَلَا تَتَّبِعُوا خُطُواتِ ( 168:البقرة اية) الشَّيْطَانِ ۚ إِنَّهُ لَكُمْ عَدُوٌّ مُبِينٌ

*"O mankind, eat of the lawful (Halal) and good (Tayeb) on the earth and do not follow Satan because Satan is an open enemy for you." (Surah Al-Baqarah [2]: 168, Al Quran).*



# ISTIHALAH الإستحالة

*The Islamic Literature does not have a clear/fixed definition for Istihalah, from scientific/chemical and industrial viewpoint, to be considered TODAY for standardisation.*

RATHER

*The Literature sometimes characterised certain processes as ISTIHALAH based on **Qiyās** قياس ACCORING TO LEVEL OF KNOWLEDGE AT THE TIME*



# Qiyās قياس

*The process of deductive analogy in which the teachings of the Hadith are compared and contrasted with those of the Qur'an, in order to apply a known injunction (النص nass) to a new circumstance and create a new injunction. Here, the ruling of the Sunnah and the Qur'an may be used as a means to solve or provide a response to a new problem that may arise.*



*Qiyās* قیاس....

# *The Big Challenge*

*QIYAS IS A HIGHLY SPECIALISED CHAPTER  
of Islamic jurisprudence,  
Fiqh فقه*



# *Istihalah in the literature*

*Abdul-Sattar Abu Ghudda:*

*Istahalah is a change of a substance that causes transformation from its nature to another nature, such as:*

- Burning (الإحراق) of a Najis until it becomes ASH. Like Mutanajjis Wood, Dung or waste.*
- Process of making Vinegar (التخلل) Transformation of wine to vinegar.*
- Fermentation التخمير: The change of grapes to wine.*
- The fall of a substance into another substance, so it decomposes and gets consumed استهلكت .*

*Ghuddah also states:*

- The following changes cannot be considered as Istihalah: evaporation, condensation, grilling, backing, dough making, grinding, change of a name based on position or condition.*



# *Istihalah in the literature ... continues*

يقول الدكتور الهواري بأنه في المصطلح العلمي الشائع يُنظر إلى كل تفاعل كيميائي يحول المادة إلى مركب آخر، على أنه ضرب من استحالة العين إلى عين أخرى، كتحويل الزيوت والشحوم على اختلاف مصادرها إلى صابون.

*Dr Hawari stated that Istihalah, in the common scientific term refers to any chemical reaction that transforms a substance to another compound as a type if transformation of a substance to another substance.  
Example: the transformation of oils and fats, regardless of their origin, to become soap.*

# *Istihalah of Pig originated material in the Fatwa*

**Pig derived products are not acceptable as being Halal regardless to the transformation status**

**(Unity in the opinion of Some Fiqh Councils and Halal Certifying Bodies in Pakistan, Indonesia, Malaysia and Thailand)**

If a Muslim became assured or in a high doubt that any of pig's meat, fat or bone prouder enters in a food, medicine toothpaste or the like of it: it is forbidden to eat, dink or rub it on the body. What is doubtful should be left away; in reference to the hadith Alrasool SAW "Leave that which makes you doubt for that which does not make you doubt." Dar alIftaa Saudi Arabia, Shaikh AA Bin Baz, Shaikh A Razaq Afifi, Shaikh AABim Ghadyan, Shaikh AK Bin Qaood.

"إذا تأكد المسلم أو غلب على ظنه أن لحم الخنزير أو شحمه أو مسحوق عظمه دخل منه شيء في طعام أو دواء أو معجون أسنان أو نحو ذلك: فلا يجوز له أكله ، ولا شربه ، ولا الادهان به ، وما يشك فيه : فإنه يدعه ؛ لقوله صلى الله عليه وسلم ( : دع ما يريبك إلى ما لا يريبك . ) (الشيخ عبد العزيز بن باز ، الشيخ عبد الرزاق عفيفي ، الشيخ عبد الله بن غديان ، الشيخ عبد الله بن قعود)





# *Istihalah of Pig originated material in the Fatwa*

**Pig derived products are not acceptable regardless to the transformation status.**

**(Unity in the opinion of Some Fiqh Councils and Halal Certifying Bodies in Pakistan, Indonesia, Malaysia and Thailand)**

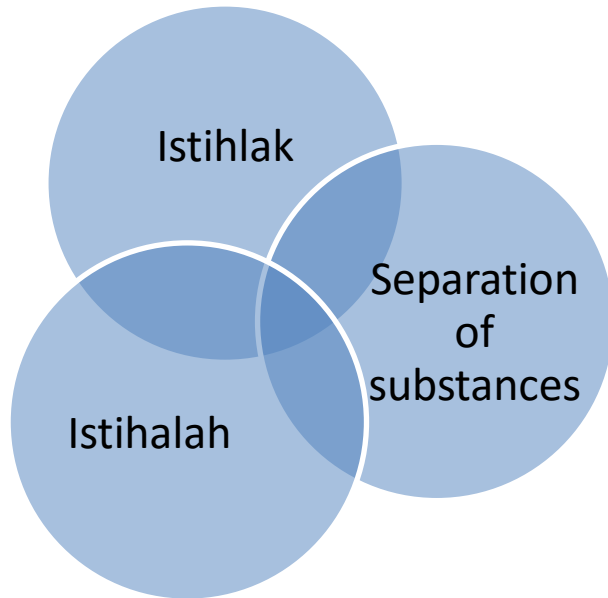
*It is not permissible for a Muslim to use starters and gelatine that is derived from pork in food,*

*International Islamic Fiqh Academy Decision 11/3, 1986*

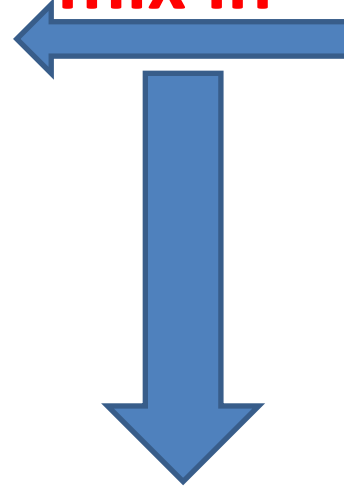
*"لا يحل للمسلم استعمال الخمائر والجلاتين المأخوذة من الخنازير في  
الأغذية" قرار مجمع الفقه الإسلامي الدولي لقرار رقم 1986 (11/3) 23 م*



# *Understanding Science and Industry to form applicable Fatwas*



**Has led to a  
mix in**



Lack of understanding of  
chemical / scientific basics  
of food technology  
In relation to the concept of  
Istihalah and Istihlak

## **Contradictory Fatwas on Istihalah and Istihlak**

# Lack of Understanding of Istihalah at a FIQH COUNCILS Level

- International Islamic Fiqh Academy 198 (21/24) dated 22/11/2013
- 22/11 في 198 (21/24) قرار مجلس المجمع الفقهي الإسلامي الدولي رقم
- "Istihalah in Fiqh terms " an actual change in an impure substance (najis) or that which is forbidden to be consumed, so to be transformed to another substance which is different in name and natural character. **IN A COMMONLY SCIENTIFIC TERM, IT IS DESCRIBED AS "ANY COMPLETE CHEMICAL REACTION".**

"الاستحالة في الاصطلاح الفقهي "تغير حقيقة المادة النجسة أو المحرم تناولها وانقلاب عينها إلى مادة أخرى مختلفة عنها في الاسم والخصائص والصفات "و يعبر عنها في المصطلح العلمي الشائع بأنها **"كل تفاعل كيميائي كامل"** .

"Blood plasma, which is a cheap alternative to egg whites - may be used in pies, soups, sausages, hamburgers and pastries and biscuits, pudding, bread, dairy products and medicines for children and their food, which also may be added to flour, are Halal . It is different from blood in the name, characteristics and qualities. It has a different ruling, than that of blood. "

• "أما **بلازما الدم** التي تعتبر بديلا رخيصا لزلال البيض -وقد تستخدم في الفطائر والحساء و النقانق و الهامبورجر و صنوف المعجنات كالكعك و البسكويت والعصائد (بودينغ )، والخبز ، ومشتقات الألبان وأدوية الأطفال وأغذيتهم ، والتي قد تضاف إلى الدقيق **فإنها حلال مختلفة عن الدم في الاسم و الخصائص و الصفات فليس لها حكم الدم** ."

**NO CHEMICAL REACTION**

لم يحصل أي تفاعل كيميائي



# The old narrated examples of Istihalah....

○ الخمر إذا تحول الى خلٍ .أكسدة

- Wine turned to vinegar. **Oxidation**

○ الخشب المتجس و السرجين والعذرة تحترق فتصير رماداً فتطهر .إحتراق

- Mtnajis Wood or dung is burnt to ashes to becomes clean. **Burning**

○ الحمار أو الخنزير الذي وقع في المملحة و تحول الى ملح –تفسخ الجثة

- Donkey or Pig, which fell in salt land and turned into salt –

**Decomposition**

○ تحول جثة الحيوان الميت الى تراب –تفسخ الجثة

- Animal dead body turned to dust – **Decomposition**

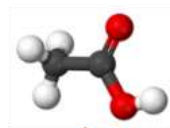
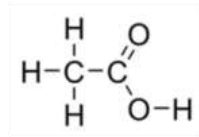
○

○ ماهو القاسم المشترك بين هذه الأمثلة من الناحية الكيميائية؟

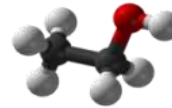
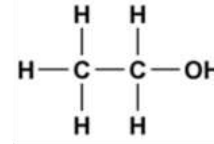
**What is the common denominator between these examples from a chemical viewpoint?**

# The old narrated examples of Istihalah....

## Wine changes to Vinegar through Oxidation reaction

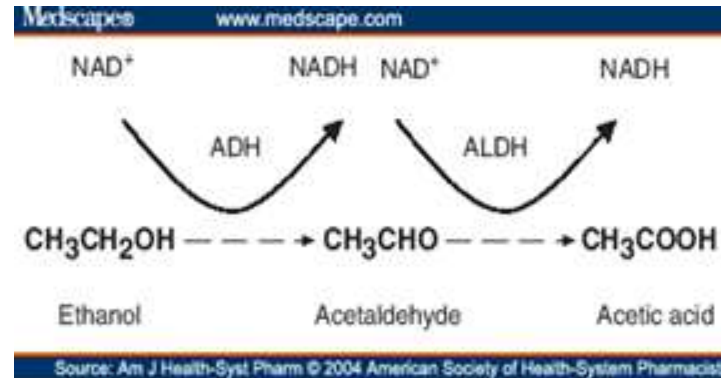


خل  
(حامض الخليك)



خمر  
(كحول أثيلي أو إيثانول)

استحالة الخمر الى خل



Complete Chemical reaction at the ionic level

# *The old narrated examples of Istihalah....*

**Mtnajis Wood or dung is burnt to ashes to become clean.**

**Burning is a high-temperature exothermic redox chemical reaction between a fuel and an oxidant, usually atmospheric oxygen, that produces oxidized, often gaseous products, in a mixture termed as smoke.**

**What is Ash? In analytical chemistry, ashing is the process of mineralization for preconcentration of trace substances prior to chemical analysis.[1] Ash is the name given to all non-aqueous residue that remains after a sample is burned, which consists mostly of metal oxides. Ash is one of the components in the proximate analysis of biological materials, consisting mainly of salty, inorganic constituents.**

Complete Chemical reaction at the ionic level



# *The old narrated examples of Istihalah....*

## **Animal Body to become salt of soil**

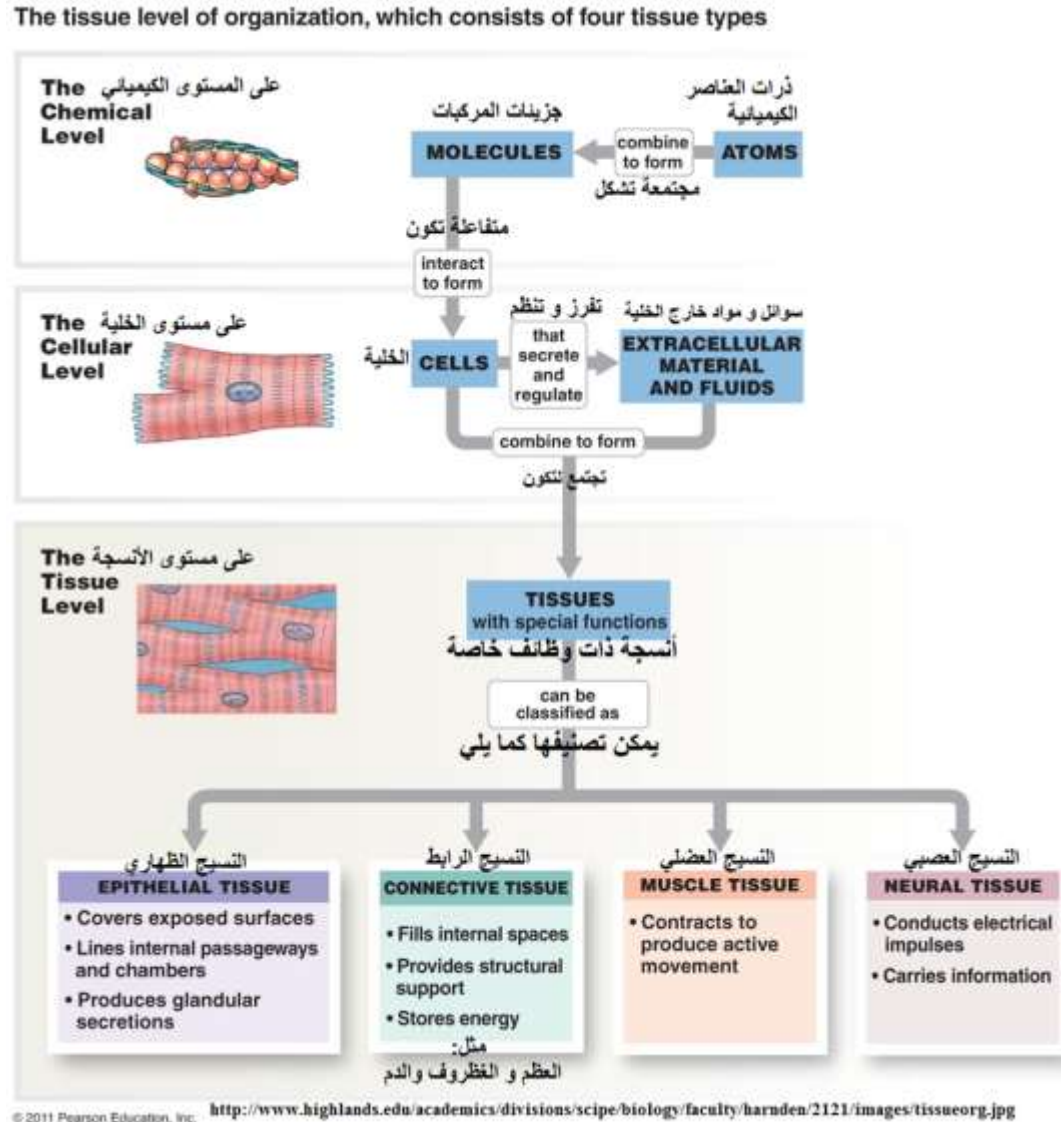
Complete Chemical reaction at the ionic level

- What is the nature of chemical reactions and physical and complex biological changes that lead to the decomposition of animal's dead body in order to turn into soil or when fats in a salt land its body decomposes to salts?
- Based on these complex chemical reactions associated with how an animal's body decomposes we should analyse how meat, skin, bone, blood (organic matter) changes to salt or soil. We should also examine the decomposition of biological material and proteins to nucleic acids and then its transformation into salts.
- Plant absorbs elements in the form of ions



# The old narrated examples of Istihalah....

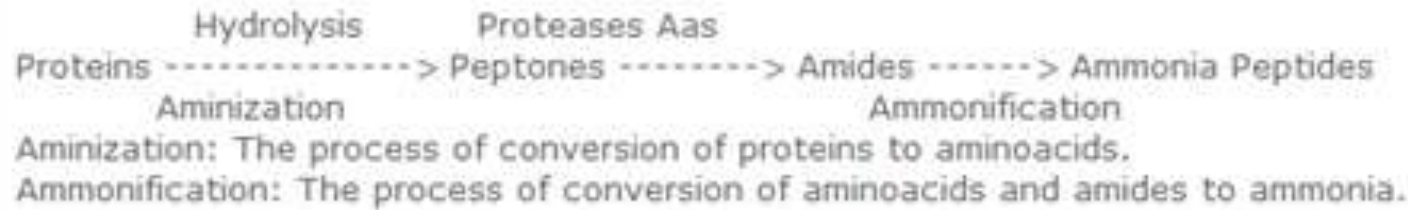
Complete chemical reactions at the ionic level, is required to build body organs.

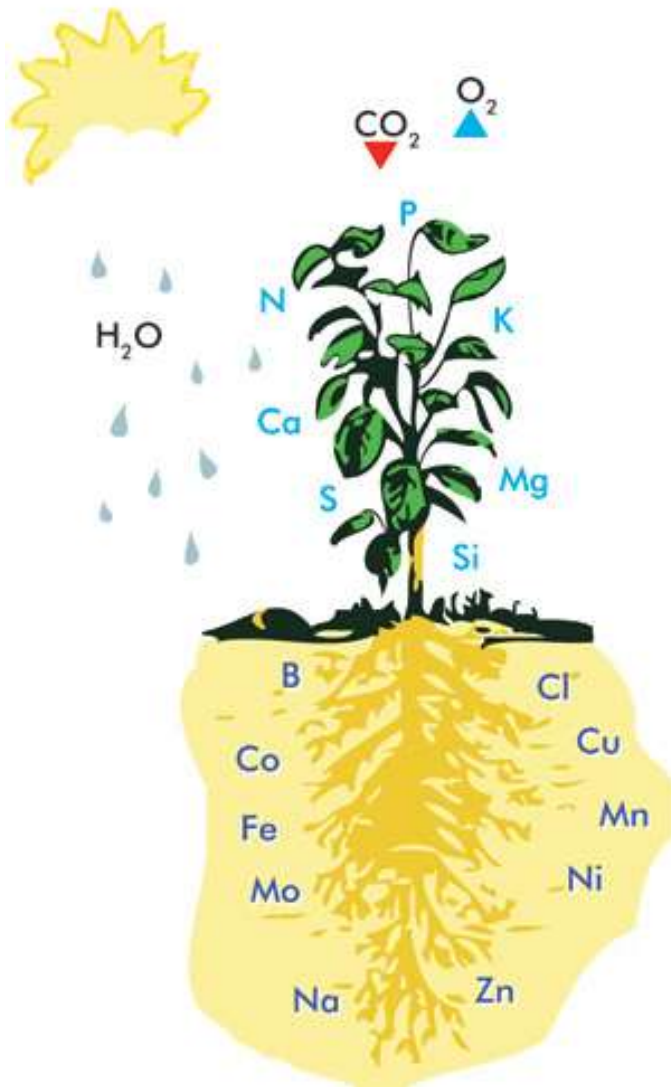


Complete chemical reactions at the ionic level, are required to decompose body organs.



# Chemical transformation related to the decomposition of an animals body as described in Istihala of a dead pig or animal body to salt or soil.





- Plants absorb salts and can not absorb proteins.
- Plants do not absorb proteins such as those in the blood or meat because they are complex compounds.
- Meat is protein and water.
- Blood contains proteins and water.

## Use animal based material

- We do not see that Istihalah is complete in the case of the ability to detect nucleic acids DNA, enzymes and fats.



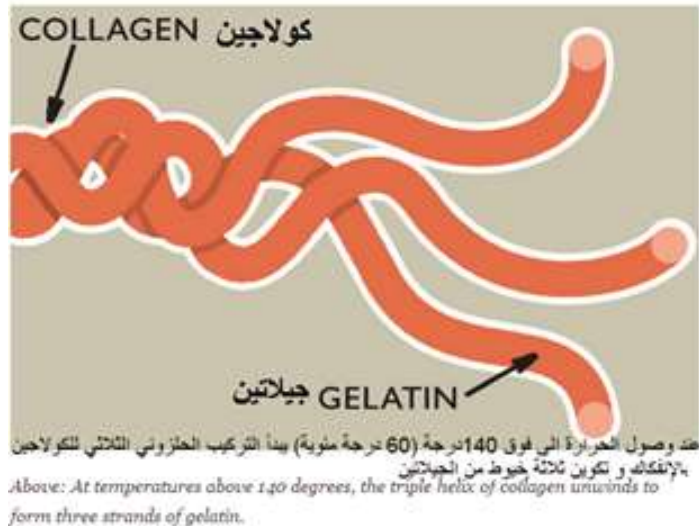
# Definition of Istihalah

- **The natural transformation of a substance to a new substance through complete chemical reactions. The new substance is different from the original substance in its name, physical and chemical properties.**



# Collagen and Gelatine

Cooking tough cuts way beyond well-done breaks down collagen, turning it into gelatin. How? Well, collagen is composed of three protein chains tightly wound together in a triple-stranded helix. When raw, collagen is pretty much unchewable. But when cooked, things change. At 140 degrees, this helix begins to relax, unwinding into individual strands—in essence, forming gelatin.



The single strands of gelatin are important because they can retain up to 10 times their weight in moisture, tenderize meat, and add an essential and luxurious richness to sauces in braised dishes. The longer a tough cut of meat is held at a temperature above 140 (though preferably 160 to 180 degrees) the more collagen will unwind into gelatin. And the more gelatin the more tender your final dish.

**Collagen is composed of three protein chains tightly wound together in a triple-stranded helix. When raw, collagen is cooked, things change. At 140 degrees, this helix begins to relax, unwinding into individual strands, forming gelatine.**

# Gelatine and Collagen

**Gelatine is formed after cooking.**







## Horrors of China's meat trade: 500 dogs stuffed into lorry in appalling conditions before being served up in restaurants

- Activists tried to stop the vehicle, but were beaten back by thugs
- Many had already died due to barbaric treatment and searing heat

By DAILY MAIL REPORTER

PUBLISHED: 16:50, 24 July 2012 | UPDATED: 09:52, 28 July 2012

Stuffed into a lorry so tightly they can barely breathe, these desperate animals are the latest victims of China's sickening trade in dog meat.

More than 20 animal rights activists stopped the vehicle, which was carrying 500 dogs at a service station on the Jingha Highway in an effort to save them.

Due to their horrific treatment and the hot weather, a number of the dogs had already died while others were seriously ill.



© Getty China News / Rex Features

Miserable existence: Around 500 dogs are stuffed into this lorry in the most appalling conditions on their way to be slaughtered before being served up in restaurants



© Getty China News / Rex Features

Died and dying: Several dogs had already passed away when activists arrived due to the cramped conditions and searing heat

## خبر حافلة محملة بـ 500

كلب وصفت حالتهم  
بالمزرية في طريقها لتقدم  
في المطاعم وإن عددا من  
هذه الكلاب ماتت بسبب  
سوء المعاملة.





**ScienceDaily** **Suffered Medical Neglect**  
Your source for the latest research news Our Medical Injury Experts Provide Free Medical Compensation

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**Featured Research** طريقة حديثة لتصنيع الجيلاتين ذو الأصل البشري

**New method for making human-based gelatin**

Date: July 14, 2011  
Source: American Chemical Society

**Summary:** Scientists are reporting development of a new approach for producing large quantities of human-derived gelatin that could become a substitute for some of the 300,000 tons of animal-based gelatin produced annually for gelatin-type desserts, marshmallows, candy and numerous other products.

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**Water & Energy**  
 • Electronics  
 • Organic Chemistry  
 • Nanotechnology

**Blood Glucose**

**S**cientists are reporting development of a new approach for producing large quantities of human-derived gelatin that could become a substitute for some of the 300,000 tons of animal-based gelatin produced annually for gelatin-type desserts, marshmallows, candy and numerous other products.

Their study appears in American Chemical Society's *Journal of Agriculture and Food Chemistry*.

Jinhu Chen and colleagues explain that animal-based gelatin, which is made most often from the bones and skin of cows and pigs, only carry a host of infectious diseases such as "Mad Cow" disease and could provoke immune system responses in some people. Animal-based gelatin has other drawbacks with variability from batch to batch, for instance, creating difficulties for manufacturers. Scientists thus have sought alternatives, including development of a human-recombinant gelatin for potential use in drug capsules and other medical applications.

<http://www.sciencedaily.com/releases/2011/07/110713000952.htm>

**SCIENCE**  
**Scientists are Making Gelatin From Human DNA** علماء يصنعون جيلاتين من الحمض النووي البشري

by James Muffie | 2 | Thursday, September 09, 2011 at 12:00 pm

**Organism Diversity**  
[researchandinnovation.com](http://researchandinnovation.com)  
 Email: [info@researchandinnovation.com](mailto:info@researchandinnovation.com) Twitter: [ResearchAndInnovation](https://twitter.com/ResearchAndInnovation)



A paper, published in the *Journal of Agriculture and Food Chemistry* has made known that there have been successful experiments in which human genes were inserted into yeast in order to grow "large amounts" of human gelatin. The journal's publisher, the **American Chemical Society**, feels that the human gene gelatin could become a substitute for all of the animal-derived gelatin being used in common products, like marshmallows and candy. One can't help but feel that replacing animal parts with genetically grown human bits isn't exactly the next logical step for which animal rights groups have hoped.

<http://www.ihomarysee.com/gelatin-from-human-dna/>

سؤال: انا كان الجيلاتين الخنزيري مباحاً بالاستحالة فما حكم الجيلاتين المصنوع من الحمض النووي البشري؟

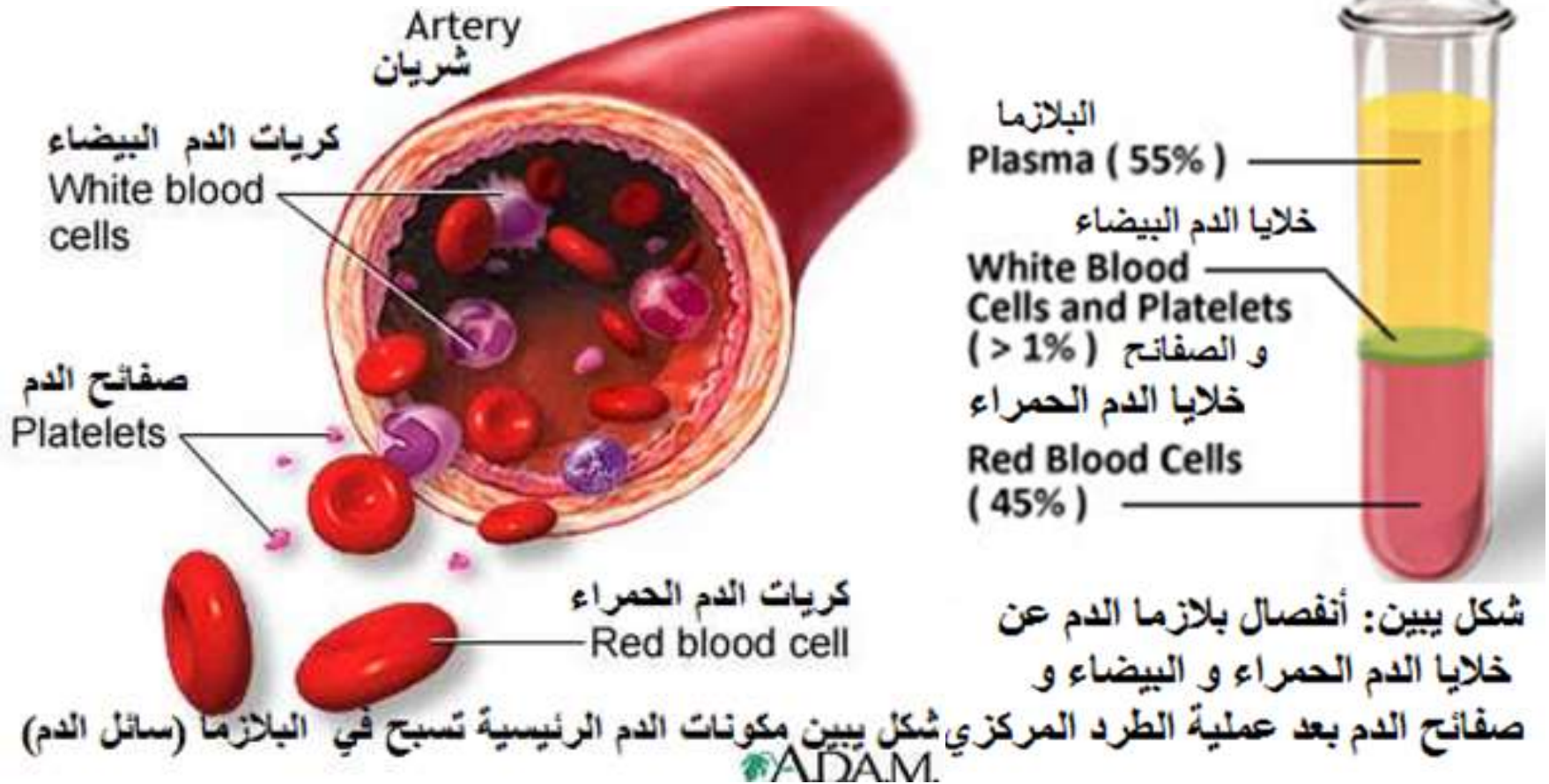
## خلاصة القول في الجيلاتين

**Gelatine is formed after cooking.**

**There is no chemical change.**

تحول الكولاجين الى جيلاتين يتم بعد عملية طبخ الجلود أو  
العظام بالماء الساخن و لا ينطبق عليه مبدأ الاستحالة

# Blood



# Blood Plasma

Blood plasma is the pale yellow liquid component of blood that normally holds the blood cells in suspension; this makes plasma the extracellular matrix of blood cells. It makes up about 55% of the body's total blood volume.

<b>Water</b>	<b>(91.5%)</b>
<b>Protien</b>	<b>(7%)</b>
<b>Others</b>	<b>1.5%</b> (Sugars, urea, hormones, vitamins)



# Chinas Production of Pig Blood:

**600 Million Pigs / year •**

**1,500,000 Tons Blood •**

**Equivalent to:**

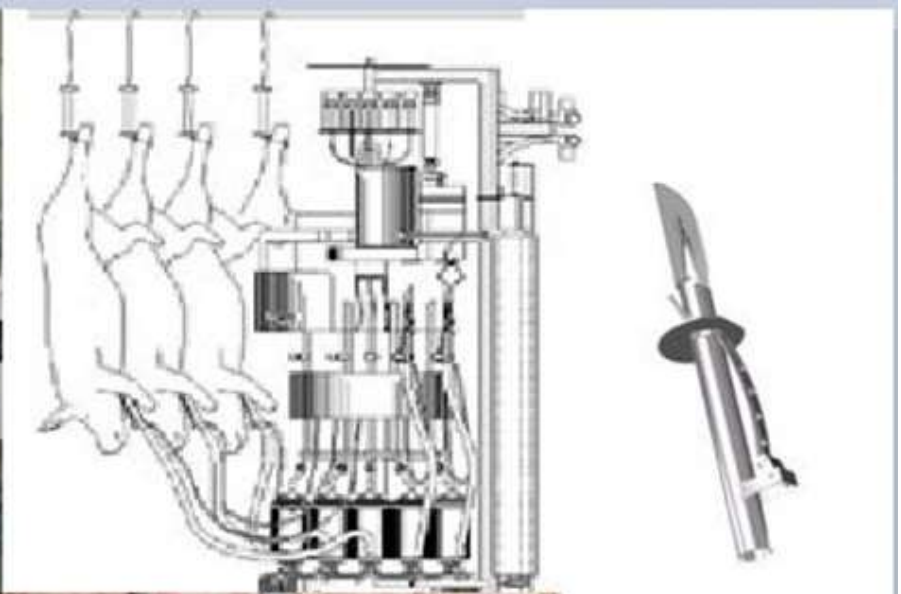
- **Protein value = 2,000,000 MT**

**Equivalent to:**

- **2,500,000 MT Eggs**



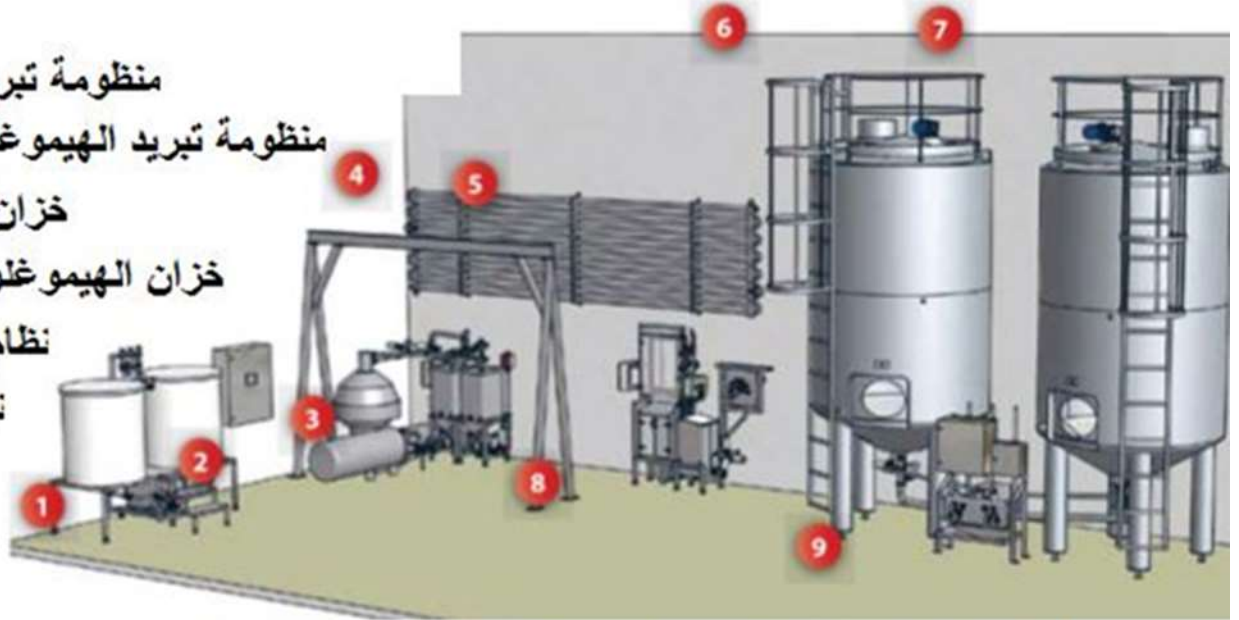




صورة أنبوب في رأسه سكين يستعمل لسحب الدم، يدخل في الخنزير من منطقة الرقبة  
 يتم خنق الخنزير بالغاز ثم دفعه الى حزام ناقل ثم تعليقه من رجليه  
 Pigs are stunned by Gas then pushed to a conveyor belt then Shackled  
 A picture showing blood sucking pipes with knife head. The knife is inserted in the pig from neck.

**Blood Collection from Pigs after stunning with CO2 Gas, for Human consumption**  
 جمع دم الخنزير للإستهلاك الآدمي بعد خنقه باستخدام غاز ثاني أوكسيد الكربون

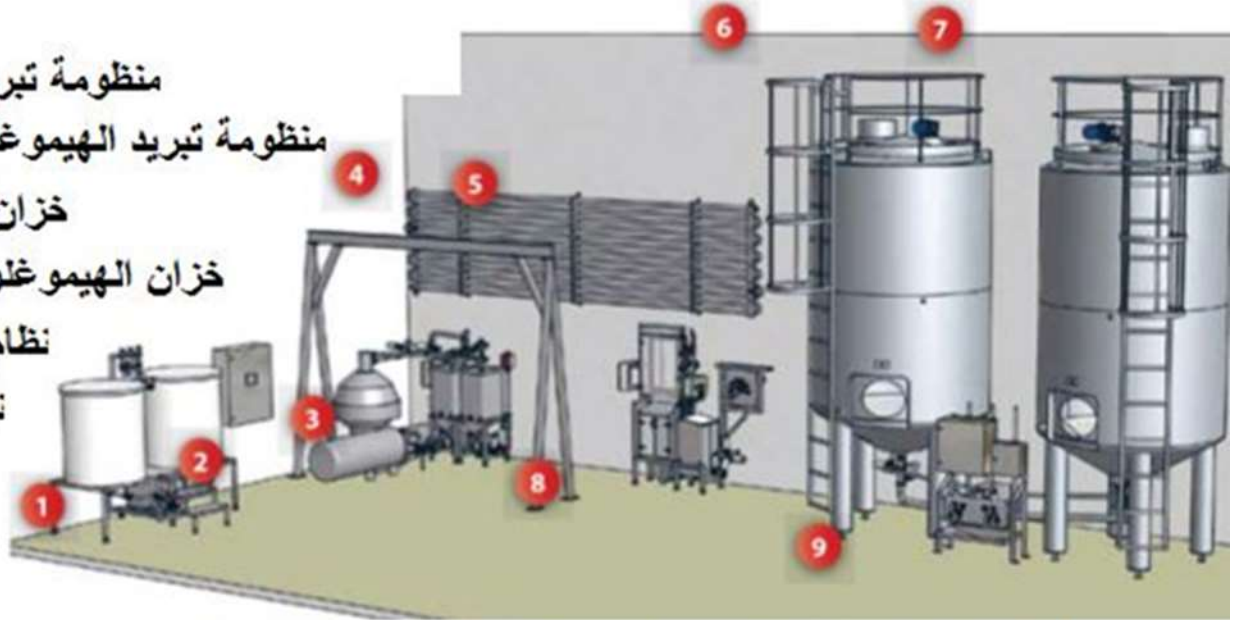
- 1 Separator Feed Tanks خزان تغذية جهاز الفصل
- 2 Separator جهاز الفصل
- 3 Transfer System النظام الناقل
- 4 Duplex Plasma Cooler منظومة تبريد البلازما
- 5 Duplex Haemoglobin Cooler منظومة تبريد الهيموغلوبين
- 6 Storage Tank for Plasma خزان البلازما
- 7 Storage Tank for Haemoglobin خزان الهيموغلوبين
- 8 AniMatic CIP System نظام تنظيف آلي
- 9 Emptying System نظام التفريغ



**Production Line for Separation of Blood Components** [www.butina.eu](http://www.butina.eu)

**الخط الإنتاجي لعملية فصل مكونات الدم**

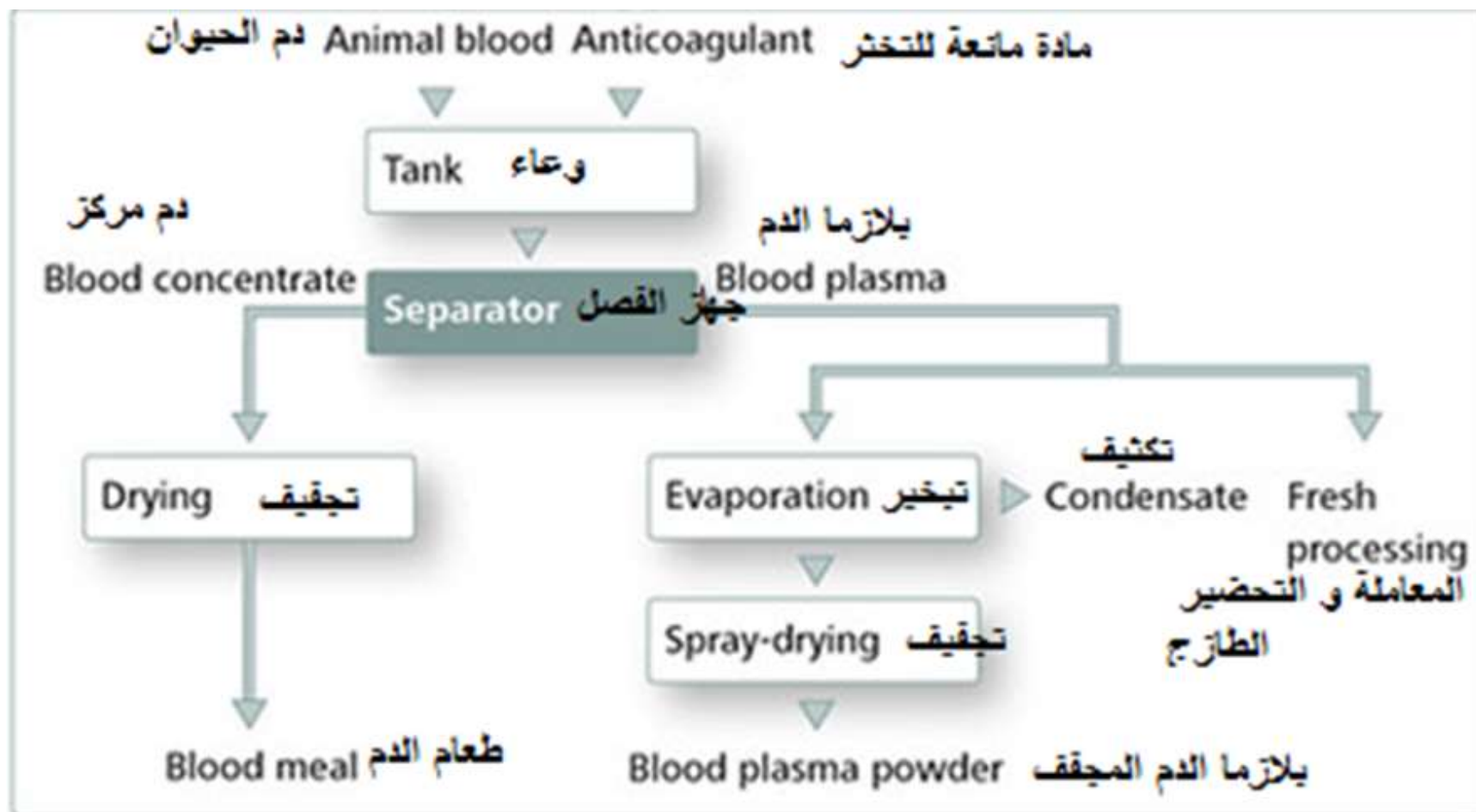
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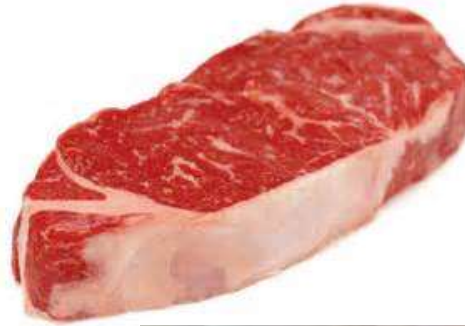




الحصول على بلازما الدم من خلال عملية الفصل Obtaining blood plasma via separation

<http://www.westfalia-separator.com/applications/renewable-resources/blood-plasma-blood-meal.html>

# صمغ اللحوم Meat Glue من المواد التجارية







# Conclusion about Blood Plasma position in relation to Istihalah

**Blood Plasma is separated using centrifugation.  
No Changes takes place. Istihalah would not  
apply.**



قال الله تعالى :  
(قُلْ لَا أَجِدُ فِي مَا أُوحِيَ إِلَيَّ مُحَرَّمًا عَلَى  
طَاعِمٍ يَطْعَمُهُ إِلَّا أَنْ يَكُونَ مَيْتَةً أَوْ دَمًا  
مَسْفُوحًا أَوْ لَحْمَ خِنزِيرٍ فَإِنَّهُ رِجْسٌ )  
الأنعام/145.