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Research Publications Related to Goat's Milk: Bibliometrics Analysis

Penerbitan Kajian Berkaitan Susu Kambing: Analisa Bibliometrik

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Abstract: Goat's milk in its natural form has high food value. It benefits humans by providing nutrients like calcium, proteins, fats, carbohydrates, vitamins, and minerals. Trend research on publications of goat's milk was studied. The objectives of this study are to analyze trends related to goat's milk in existing research publications and to show the most suitable scope of research for future research purposes. This study uses bibliometric analysis to examine the results of past publications on goat's milk-related research. According to research articles, researchers found that the majority of the previous research on goat's milk dominated article journals by 94%. Most of the topics studied in the research related to goat's milk revolve around the biotechnology field. Research on the method of analysis conducted in the previous studies found that most studies on goat's milk are scientific analysis. In the science area, the studies are divided into seven areas. The areas are biotechnology, agriculture, nutrition, biochemistry, systems biology, microbiology, and biomedical. In Islamic areas, the field of study that focuses on the analysis of the Islamic view is Islamic studies. It is found that research publications in goat's milk are more active in the scientific analysis compared to Islamic analysis. Therefore, the efforts of studies or research in both scientific and Islamic analysis needed to be balanced. Analysis of goat's milk within the Islamic context needs to be more productive in the development of Islamic studies. Advanced new studies of goat's milk are expected to produce benefits to Muslims and society as a whole.

Keywords: Goat's milk, Research trend, Bibliometrics, Islamic area, science area

Abstrak: Susu kambing dalam bentuk semula jadi mempunyai nilai makanan yang tinggi. Ia memberi manfaat kepada manusia dengan menyediakan nutrien seperti kalsium, protein, lemak, karbohidrat, vitamin dan mineral. Kajian trend penerbitan susu kambing telah dilakukan. Objektif kajian ini adalah untuk menganalisis trend yang berkaitan dengan susu kambing dalam penerbitan penyelidikan yang ada dan untuk menunjukkan skop penyelidikan yang paling sesuai untuk tujuan penyelidikan masa depan. Kajian ini menggunakan analisis bibliometrik untuk meneliti hasil penerbitan masa lalu mengenai penyelidikan berkaitan susu kambing. Penyelidik mendapati sebahagian besar penyelidikan sebelum ini mengenai susu kambing menguasai jurnal artikel sebanyak 94%. Sebilangan besar topik yang dikaji dalam penyelidikan yang berkaitan dengan susu kambing berkisar pada bidang bioteknologi. Kebanyakan kajian mengenai susu kambing adalah dalam bentuk analisis saintifik. Dalam bidang sains, kajian dibahagikan kepada tujuh bidang, iaitu bioteknologi, pertanian, pemakanan, biokimia, biologi sistem, mikrobiologi dan bioperubatan. Bidang pengajian Islam juga mempelopori skop kajian ini. Didapati bahawa penerbitan penyelidikan susu kambing lebih aktif dalam analisis saintifik berbanding analisis Islam. Oleh itu, usaha kajian atau penyelidikan dalam analisis saintifik dan Islam perlu seimbang. Analisis susu kambing dalam konteks Islam perlu lebih produktif untuk pengembangan kajian Islam. Kajian baru mengenai susu kambing diharapkan dapat memberi manfaat kepada umat Islam dan masyarakat secara keseluruhan.

Kata kunci: susu kambing, tren penyelidikan, bibliometric, bidang Islam, bidang sains

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Introduction

Bibliometrics research is defined as the statistical analysis of books, articles, or other publications. This research also measures the output of the field of study in research material related to goat's milk. This type of research can be used quantitatively and qualitatively to approach a variety of questions in the humanities and sciences. For example, bibliometrics can be used for literature study for its content. These publications benefit society through the accessibility of knowledge on the goat's milk industry.

Goat's milk contains high nutritional content such as calcium, phosphorus, chlorine, and vitamins. In the aspect of health, goat's milk is useful in relieving symptoms of stress (neurotic indigestion, constipation, and insomnia) because it is a good source of vitamin B1. Goat's milk can be the replacement of cow's milk for those suffering from allergy. People with high blood pressure are recommended to consume goat's milk compared to cow's milk since goat's milk has lesser fat content than cow's milk. Its lesser content of sugar than cow's milk makes it more suitable to consume for those suffering from diabetes. Goat's milk does not form mucous (phlegm). Thus, it is more friendly by those with allergies and asthmatics (Kalyankar et al., 2015). Goat's milk can be used to manufacture a variety of products including fermented products like cheese, buttermilk or yogurt, frozen products such as ice cream or frozen yogurt, butter, dried/condensed products, sweets and candies, UHT (ultra-high temperature), and fluid beverage products (low fat, flavored, or fortified) (Ribeiro & Ribeiro, 2010). The goat's milk industry may widen its products by expanding its horizon to skincare, cosmetics, and beauty market. High-quality products are ensured to achieve successful market prospects. In results, professional handling of goat's milk products leads to better profits and rewards (Ribeiro & Ribeiro, 2010)

Described as the "poor man's cow", goat's milk is still neglected in research development and yet to be exploited to get maximum benefits (Bhattarai, 2012). It can be said that the milk industry helps in the economy for developing countries especially in the Mediterranean, Middle East, Eastern Europe, and South American countries (Ribeiro & Ribeiro, 2010), and could be the greatest advantage for industrialization of a country (Bhattarai, 2012).

Previous Findings

Based on the study by Jenness (1980), the amount of fat, protein, and lactose in dwarf goats from European breeds are higher than other breeds. It is found that goat's milk has higher contents of potassium and chloride but less orotic acid, N-acetyl neuraminic acid, folate, vitamin B6, and vitamin B12 than cow's milk. Additionally, goat's milk can be manufactured to produce a variety of products including cheese, yogurt, buttermilk, and many more. Cheese is the most commercially produced goat's milk product in the industry (Park, 2010). Fresh goat's milk is an opaque and white liquid with a sweet taste and no odor. This milk does not contain pathogens and any foreign substances, which may be caused by improper practices or lack of skills in keeping the animals and milk during the process during or after the milking (Park, 2010). The best goat's milk manufactured products come from high-quality milk, managed and clean goat herd, and a professional third party involved in the goat's milk industry (Park, 2010). This industry helps a lot in the economy of some developing and developed countries.

As for the health aspects, goat's milk is becoming well-known consumers since it can be a good replacement for cow's milk for those who have allergies. On the other hand, goat's milk has significant deficiencies in Vitamin B12 and folic acid. This may cause "goat's milk anemia". Another disadvantage is goat's milk might be more expensive than similar products derived from ovine and bovine milk (Ulusoy, 2015).

Since the composition of every milk is different, goat's milk has its benefits and disadvantages, compared to other kinds of milk such as cows and human milk. A study by Lad et al. (2017), proved therapeutic values, digestibility, and alkalinity in goat's milk are better than other kinds of milk. Fat globules in goat's milk are smaller than cow's milk which means it has significant health values and considered "self homogenized" milk (Park et al., 2007). Besides, medium-chain triglycerides contained in this milk helps treat food absorption disorders such as liver disease and diarrhea (Lad et al., 2017). The major carbohydrate contained in goat's milk is lactose which benefits us by helping the absorption of magnesium, calcium, and phosphorus in the intestines (Lad et al., 2017) Plus, milk synthesis in the human body needs this carbohydrate and also during secretion of milk into the duct system of the udder (Lad et al., 2017). But, according to Sofuwani et al. (2017), excessive consumption of lactose may cause bloating, diarrhea, and other inconvenient symptoms, even though goat's milk has lower lactose than cow's milk. Concentrated milk contains 5.63 g per 100 ml of lactose concentration, which is similar to commercial milk (Malaysia) by using a high degree of lactose removal. Therefore, the less-lactose concentration of goat's milk can be produced to avoid bad tolerance for lactose consumption. Oligosaccharides contain important components for infant nutrition (Lad et al., 2017).

Furthermore, Vitamin A in goat's milk, which has the same amount as human milk, is significant for immunity and antibodies. Vitamin C also helps in the

aspect of the immune system. Goat's milk is a good source of vitamins such as D, E, thiamine, niacin, and riboflavin (Lad et al., 2017).

No wonder why Prophet Muhammad (PBUH) suggested to us, the Muslims to drink milk in general. When Prophet Muhammad was offered by *Malaikat* to consume alcoholic drinks or milk he chose milk (Machrus, 2017). He said milk is the healthiest drink. It is due to its complete nutrients needed by humans. In *Surah An-Nahl* verse 66, Allah said,

وَإِنَّ لَكُمْ فِى ٱلْأَنْعَٰمِ لَعِبْرَةً ۖ نُّسْقِيكُم مِّمَّا فِى بُطُونِهِۦ مِنۢ بَيْنِ فَرْثٍ وَدَمٍ لَّبَنًا خَالِصًا سَآئِغًا لِّلشَّٰرِبِينَ

"And indeed, for you in grazing livestock is a lesson. We give you a drink from what is in their bellies - between excretion and blood - pure milk, palatable to drinkers."

It looks like milk and blood are mixed when they are not. The verse urges us to think because milk has different and cleaner nutrients and compositions compared to blood. The verse also stated that milk is usually obtained from farm animals since long ago. The farm animals, camels, cows, goats, and sheep are producing milk for humans to always stay healthy, strong, and active. In the verse itself, there are valuable lessons that can help people understand the greatness and power of Allah, the Almighty. Allah created pure milk that is not mixed with blood and any kind of dirt, has a nice color, not smelly, and easy to consume and digest (Shihab, 2009).

Moreover, people occasionally think about how the animals that mostly eat grass can produce such delicious and nutrient-packed substance as stated in *Surah An-Nahl* verse 66. Allah created them to eat grass and produce milk, which is scientifically a plant-based substance because of its nutrients. In the study of human blood circulation and found out that blood transports nutrients from the digested food to become the basic elements to the milk glands to be used in milk production. The study was studied a thousand years after the Al-Quran. Al-Quran is the word of Allah (*kalamu Allah*) as revealed to his prophet Mohammad (PBUH) as the holy guide for humans to live in His creations (Bakar, 2004).

Based on *tafsir at-Thabari*, the phrase سَآئِغًا لِّلشَّٰرِبِينَ "palatable to drinkers" means easy to consume and digest and does not choke the drinkers (Ath-Thabari, 2009).

In other verse, *Surah Al-Mu'minun* verse 21, Allah said;

وَإِنَّ لَكُمْ فِى ٱلْأَنْعَٰمِ لَعِبْرَةً ۖ نُّسْقِيكُم مِّمَّا فِى بُطُونِهَا وَلَكُمْ فِيهَا مَنَٰفِعُ كَثِيرَةٌ وَمِنْهَا تَأْكُلُونَ

"And indeed, for you in livestock is a lesson. We give you a drink from that which is in their bellies, and for you in them are numerous benefits, and from them, you eat."

This verse is related to *Surah An-Nahl* verse 66 above, stated that there are lessons and knowledge that can be taken in milk from those farm animals that are beneficial for humans to consume due to its compositions and substances. Allah also said milk is 'easy' to be consumed by humans. The phrase 'easy to be consumed' means milk has good human body physiological response, in other words, easy to be digested and does not harm anybody's parts while consuming it. The Almighty Allah never gives His servants a harmful source of drinks that may lead to several diseases (Thalbah, 2015).

Verse 66 in *Surah An-Nahl* which explains about milk from the farm animals can be tolerated with the previous and next verses, 65, 67, 68, and 69, which mainly discuss food and its sources. Allah said in *Surah An-Nahl* verse 69,

ثُمَّ كُلِى مِن كُلِّ ٱلثَّمَرَٰتِ فَٱسْلُكِى سُبُلَ رَبِّكِ ذُلُلًا ۚ يَخْرُجُ مِنۢ بُطُونِهَا شَرَابٌ مُّخْتَلِفٌ أَلْوَٰنُهُۥ فِيهِ شِفَآءٌ لِّلنَّاسِ ۗ إِنَّ فِى ذَٰلِكَ لَءَايَةً لِّقَوْمٍ يَتَفَكَّرُونَ

"And your Lord inspired to the bee, 'Take for yourself among the mountains, houses, and among the trees and [in] that which they construct'."

The word شِفَآءٌ *'Syifa'* from the verse means medicine and pleasure from what He created have many benefits human's health. The same goes for milk, which also acts as one of the human sources of medicine (Husein, 1985).

Based on a hadith by Prophet Muhammad (PBUH), *Rasulullah* drank milk and gargled right after to get rid of fat contained in the milk. Medical science had proved that fats in milk are in small granules in the form of solution and sugar. After research and studies had been done, milk is significant for the growth of human body cells (Toyyib, 2010). Many types of fruit are also mentioned in Al-Qur'an for us to discover more knowledge about the benefits and specialty of them.

Based on all of the verses and hadith stated, they confirm the authenticity of Al-Quran and the word of Allah says a lot about science and technology. The growth of knowledge on science and technology helps in the quality of living of people around the globe. With the advantage of Al-Quran for Muslims, Islamic countries all over the world can develop a modern nation, on par with developed west countries.

Methodology

This research uses bibliometric analysis to examine the results of past research publications. Bibliometrics is the use of statistical methods to analyze books, articles, and other publications. This study can be used in various

fields of study such as library science, information science, citation analysis, and content analysis (Hertzel, 2003). Bibliometrics can be used for books, websites, policy statements, conference proceedings, monographs, and patents. It estimates the influence or impact of selected research on other future research (Cooper, 2015). The purpose of bibliometrics analysis is to trace the development or impact of research and to compare, communicate, and quantify the importance of scientific work (Basuki, 2002). The main subject of a bibliometrics analysis is past research publications including journals, books, magazines, and others, whether in print and electronic media. These past research publications help society access to trusted resources of knowledge. Therefore, bibliometrics analysis shows the development of the format of past research publications to books and other media of communication, not only applied to books and scientific journals (Ahmad et al. 2016).

The search or find method is important to ensure that every research data can be found effectively. 62 publications are analyzed in this study to obtain the results. Most of the researchers will be using keywords to get information. Those keywords are:

Keywords
1) Goat's milk + PDF
2) *Susu kambing* + PDF
3) Capra Aegagrus Hircus + PDF
4) لبن الماعز + PDF

The data (research publications) are then grouped according to their format and field of study manually.

Results and Findings Analysis

In this bibliometrics study, the authors focus on goat's milk, in which this production data is the main reference data for past goat's milk research-related publications. The results focus on two analysis from the data, which are:

1. The format of past goat's milk research-related publications.
2. The field of study of past goat's milk research-related publications.

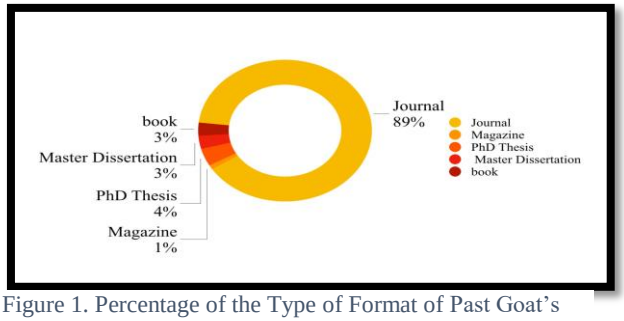

Figure 1. Percentage of the Type of Format of Past Goat's Milk Related Research Publications

In this bibliometrics study, the authors focus on goat's milk, in which this production data is the main reference data for past goat's milk research-related publications. The results focus on two analysis from the data, which are:

1. The format of past goat's milk research-related publications.
2. The field of study of past goat's milk research-related publications.

According to the figure above, researchers found that the majority of the format dominated journals by 89%. The second-highest percentage of the type of format is Ph.D. thesis, by 4%. Then, it is followed by master dissertations by 3%, books by 3%, and magazines by 1%.

The list of goat's milk-related research publications based on the type of format (to avoid too much-repeated content, the researcher only put a few publications from each type of format. The full publications are shown on the field of study of past goat's milk research-related publications).

JOURNAL

1. Chilliard, Y., Ferlay, A., Rouel, J., & Lamberet, G. (2003). A review of nutritional and physiological factors affecting goat milk lipid synthesis and lipolysis. *Journal of dairy science, 86(5)*, 1751-1770.
2. Park, Y. W. (1994). Hypo-allergenic and therapeutic significance of goat milk. *Small Ruminant Research, 14(2)*, 151-159.
3. Daddaoua, A., Puerta, V., Requena, P., Martinez-Ferez, A., Guadix, E., Sanchez de Medina, F., & Martinez-Augustin, O. (2006). Goat milk oligosaccharides are anti-inflammatory in rats with hapten-induced colitis. *The Journal of nutrition, 136(3)*, 672-676.
4. Nur Sofuwani ZA, Siti Aslina H, Siti Mazlina MK (2017) Benefit of Lactose Concentration between Goat's Milk and Commercialized Powder, *Milk. J Food Process Technol* 8: 682.

Ph.D. THESIS

1. **موسي, فاطمة هارون, & انس محمد عثمان. (2010). دراسة مقارنة الخواص الفيزيائية والكيميائية للجبن الطري المصنع من** Doctoral dissertation, **جامعة السودان لبن الابقار ولبن المعاعز (للعلوم والتكنولوجيا).**
2. **محمـــد, التاية حـــوى النبي عثمـان, & مشرف-عبدالعزيز مكـاوي عبدالرحمـن. (2016). أثـر نوع الجنين على إنتـاجية ومكونـات اللبن في بعض سلالات المـاعز المنتج للبن النـوبي** Doctoral dissertation, **جامعة السودان للعلوم والتكنولوجيا). (والسعـانين**

MAGAZINE

1. Sukarini, I. A. M. (2006). Produksi dan Komposisi Air Susu Kambing Peranakan Etawah yang Diberi Tambahan Konsentrat pada Awal Laktasi. *Majalah Ilmiah Peternakan*, 9(1).

MASTER DISSERTATION

1. Afriananda, R. I. F. K. Y. (2011). Pengaruh Penambahan Sukrosa dan Glukosa pada Pembuatan Permen Karamel Susu Kambing terhadap Sifat Kimia, Mikrobiologi dan Organoleptik. *Jurusan Teknologi Hasil Petanian. Fakultas Pertanian. Universitas Lampung. Bandar Lampung.*

BOOK

1. Suliaman, I. (2011). Sunnah Nabi: realiti dan cabaran semasa, Kuala Lumpur: Jabatan Al-Quran dan Al-Hadith

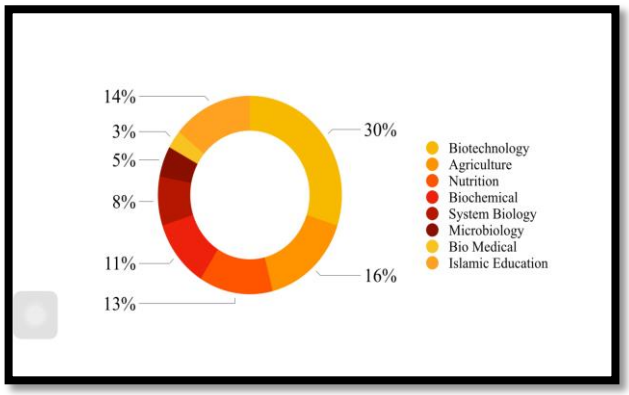

Figure 2. Percentage of the Field of Study Of Past Goat's Milk Related Publications

Based on the figure above, most of the topics studied in the research related to goat's milk revolves around the biotechnology field. Research on the method of analysis conducted in the previous studies found that most studies on goat's milk is scientific analysis. Through comparative evaluation of research, it is found that a total of 54 researches involve the scientific area of study compared to only 8 researches involved in Islamic studies. In the science field, studies are divided into seven areas. The areas are biotechnology, agriculture, nutrition, biochemistry, systems biology, microbiology and biomedical. In Islamic areas, the field of study that focuses on the analysis of the Islamic view. It is found that research publications in goat's milk is more active in scientific analysis compared to Islamic analysis.

The list of past goat's milk research related publications based on field of study are as the following:

BIOTECHNOLOGY

1. Chilliard, Y., Ferlay, A., Rouel, J., & Lamberet, G. (2003). A review of nutritional and physiological factors affecting goat milk lipid synthesis and lipolysis. *Journal of dairy science, 86(5),* 1751-1770.

2. Ribeiro, A. C., & Ribeiro, S. D. A. (2010). Specialty products made from goat milk. *Small Ruminant Research, 89(2-3),* 225-233.

3. Ambrosoli, R., di Stasio, L., & Mazzocco, P. (1988). Content of αs1-casein and coagulation properties in goat milk. *Journal of Dairy Science, 71(1),* 24-28.

4. Clark, S., & Sherbon, J. W. (2000). Alphas1-casein, milk composition and coagulation properties of goat milk. *Small Ruminant Research, 38(2),* 123-134.

5. Effendi, M. H., Hartini, S., & Lusiastuti, A. M. (2009). Peningkatan kualitas yogurt dari susu kambing dengan penambahan bubuk susu skim dan pengaturan suhu pemeraman. *J. Penelit. Med. Eksakta, 8(3),* 185-192.

6. Susilawati, S., Nurainy, F., & Nugraha, A. W. (2014). Pengaruh Penambahan Ubi Jalar Ungu Terhadap Sifat Organoleptik Es Krim Susu Kambing Peranakan Etawa [The Influence of Purple Sweet Potato Increment og Organoleptic Characteristic of Goat Milk Ice Cream of Etawa Generation]. *Jurnal Teknologi & Industri Hasil Pertanian, 19(3),* 243-256.

7. Kusumaningtyas, E., Widiastuti, R., Kusumaningrum, H. D., & Suhartono, M. T. (2015). Aktivitas antibakteri dan antioksidan hidrolisat hasil hidrolisis protein susu kambing dengan ekstrak kasar bromelin. *Jurnal Teknologi dan Industri Pangan, 26(2),* 179-188.

8. Martharini, D., & Indratiningsih, I. (2017). Kualitas mikrobiologis dan kimiawi kefir susu kambing dengan penambahan Lactobacillus acidophilus FNCC 0051 dan tepung kulit pisang kepok (Musa Paradisiaca). *Agritech, 37(1),* 23-30.

9. Droke, E. A., Paape, M. J., & Di Carlo, A. L. (1993). Prevalence of high somatic cell counts in bulk tank goat milk. *Journal of Dairy Science, 76(4),* 1035-1039.

10. Zeng, S. S., Escobar, E. N., & Popham, T. (1997). Daily variations in somatic cell count, composition, and production of Alpine goat milk. *Small Ruminant Research, 26(3),* 253-260.

11. Dulin, A. M., Paape, M. J., & Wergin, W. P. (1982).

Differentiation and enumeration of somatic cells in goat milk. *Journal of Food Protection, 45(5),* 435-439.

12. Dulin, A. M., Paape, M. J., Schultze, W. D., & Weinland, B. T. (1983). Effect of parity, stage of lactation, and intramammary infection on concentration of somatic cells and cytoplasmic particles in goat milk. *Journal of dairy science, 66(11),* 2426-2433.

13. Park, Y. W., & Humphrey, R. D. (1986). Bacterial cell counts in goat milk and their correlations with somatic cell counts, percent fat, and protein. *Journal of Dairy Science, 69(1),* 32-37.

14. Atanasova, J., & Ivanova, I. (2010). Antibacterial peptides from goat and sheep milk proteins. *Biotechnology & Biotechnological Equipment, 24(2),* 1799-1803.

15. Ayyez, H. N. (2017). Molecular detection and phylogenetic analysis of Coxiella burnetii in goats milk. Al-Qadisiyah *Journal of Veterinary Medicine Sciences, 16*(1), 79-83.

16. Al-Atiyat, R. M., Salameh, N. M., & Tabbaa, M. J. (2012). Phylogeny and evolutionary analysis of goat breeds in Jordan based on DNA sequencing. *Pak. J. Biol. Sci, 15,* 850-853.

17. Di Gregorio, P., Di Trana, A., Celi, P., Claps, S., & Rando, A. (2014). Comparison of goat, sheep, cattle and water buffalo leptin (LEP) genes and effects of the Intron 1 microsatellite polymorphism in goats. *Animal production science, 54(9),* 1258-1262.

18. Lopez-Calleja, I., Gonzalez, I., Fajardo, V., Rodriguez, M. A., Hernandez, P. E., Garcia, T., & Martin, R. (2004). Rapid detection of cows' milk in sheep's' and goats' milk by a species-specific polymerase chain reaction technique. *Journal of Dairy Science, 87*(9), 2839-2845.

AGRICULTURE

1. Pirisi, A., Lauret, A., & Dubeuf, J. P. (2007). Basic and incentive payments for goat and sheep milk concerning quality. *Small ruminant research, 68*(1-2), 167-178.

2. Sukarini, I. A. M. (2006). Produksi dan Komposisi Air Susu Kambing Peranakan Etawah yang Diberi Tambahan Konsentrat pada Awal Laktasi. *Majalah Ilmiah Peternakan,* 9(1).

3. Zain, W. N. H. (2013). Kualitas susu kambing segar di peternakan Umban Sari dan Alam Raya Kota Pekanbaru. *Jurnal peternakan, 10(1).*

4. Marwah, M. P., Suranindyah, Y. Y., & Murti, T. W. (2010). Produksi dan Komposisi Susu Kambing Peranakan Ettawa yang Diberi Suplemen Daun Katu (Sauropus androgynus (L.) Merr) pada Awal Masa Laktasi (Milk Production and Milk Composition of Ettawa Crossbred Goat, Fed Katu Leaves (Sauropus androgynus (L.) Merr) as. *Buletin Peternakan, 34*(2), 94-102.

5. Hanum, G. R. (2016). Pengaruh waktu inkubasi dan jenis inokulum terhadap mutu kefir susu kambing. *STIGMA: Jurnal Matematika dan Ilmu Pengetahuan Alam Unipa, 9*(2).

6. Prihatiningsih, G. E., Purnomoadi, A., & Harjanti, D. W. (2015). Hubungan antara konsumsi protein dengan produksi, protein dan laktosa susu kambing Peranakan Ettawa. *Jurnal Ilmu-Ilmu Peternakan, 25*(2), 20-27.

7. Mulyati, A. J., & Purnomoadi, A. (2007). Produksi dan Kompenen Lemak Susu Kambing Peranakan Ettawa Akibat Penghembusan Udara Sejuk. Fakultas Pertanian, Universitas Tadulako, Palu., Fakultas Peternakan, Universitas Diponegoro, Semarang.

8. Bhattarai, R. R. (2012). Importance of goat milk. *Journal of Food Science and Technology Nepal, 7,* 107-111.

9. Kanwal, R., Ahmed, T., & Mirza, B. (2004). Comparative analysis of quality of milk collected from buffalo, cow, goat, and sheep of Rawalpindi/Islamabad region in Pakistan. *Asian Journal of Plant Sciences, 3*(3), 300-305.

10. Kapadiya, D. B., Prajapati, D. B., Jain, A. K., Mehta, B. M., Darji, V. B., & Aparnathi, K. D. (2016). Comparison of Surti goat milk with cow and buffalo milk for gross composition, nitrogen distribution, and selected minerals content. *Veterinary World, 9*(7), 710–716.

NUTRITION

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Based on the data, researchers can conclude the data in the following table

No.	Field of study	Frequency	Percentage %
1	Biotechnology	18	30
2	Agriculture	10	16
3	Islamic Studies	8	14
4	Nutrition	8	14
5	Biochemical	7	12
6	System Biology	5	8
7	Microbiology	3	5
8	Biomedical	2	3
	Total:	62	100

Based on the results above, it is proven that the goat's milk industry revolves around a wide aspect of the study. Some aspects need to be studied more actively in both scientific analysis and Islamic analysis. Here are some suggestions from the aspects mentioned:

i. Islamic analysis research is only a few compared to scientific analysis in goat's milk-related research publications. More research-based on Quran, hadith, and tafsir are needed to be more active. Interpretation of Naqli and Aqli's knowledge is also significant to ensure the development of Islamic knowledge and also to widen the area of knowledge for Muslims around the globe.
ii. Rate of activities of goat's milk-related research should be increased since it is proven that the goat's milk industry could widen its horizon for the beauty, skincare, and cosmetics industry. This industry may help Malaysia economically, and increase standards of living of society by disseminating more knowledge on goat's milk.
iii. The composition of goat's milk in every county may differ. Research activity involving this area of study seems less active in Malaysia than any other country. Therefore, goat's milk research and study in

Malaysia should be boosted and intensified. Researchers have to cooperate to study the scientific and Islamic analysis of goat's milk from local sources to produce better production of goat's milk products and to improve the goat's milk industry in Malaysia itself.

Conclusion

Analysis of goat's milk in the Islamic context needs to be more productive in the development of Islamic studies. Advanced new studies of goat's milk are expected to produce benefits to Muslims and society as a whole.

Islamic studies also need to be improved, not only in terms of quantity of publication but also the contents and information. The growth of knowledge on science and technology helps in the quality of living of people around the globe. With the advantage of Al-Quran for Muslims, Islamic countries all over the world can develop a modern nation, on par with developed west countries. In Islam, the development of scientific and Islamic knowledge must be balanced along the way to revive back our Golden Era and to spread the right teachings of Islam to the people.

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