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MICROBIOLOGICAL STUDY OF THE KAZAKH ROUGH WOOL GOATS MEAT

Abstract

The present microbiological study of the kazakh rough wool goats meat we done in the «Ikram» farm which located in Almaty, and result of this study wrote as an article our result have shown that the composition of goat meat is not detected pathogens and recommended the slaughter of animals after the examination of vet doctor in the best animal health conditions.

Keywords: microbes, meat contamination, breed, sheep breeds hygiene, unhygienic, gram positive and negative, bacteria.

Introduction

Meat is very important component of human diet which originating of the live animals after slaughtering. Meat is very rich source of protein consumed by humans.

Most meat have high water content corresponding to the water activity approximately 0.99 which is suitable for microbial Growth [1].

Meat is considered to be spoiled when it is unfit for human consumption. Meat is subjected to changes by its own enzyme, by microbial action and its fat may be oxidized chemically. Microorganisms grow on meat causing visual, textual and organoleptic changes when they release metabolites [2].

Among the factors that affect microbial growth in meat are the intrinsic and extrinsic factors [3], however the factors having the greatest influence on the growth of microorganisms in meat and meat products are the storage temperatures, moisture and oxygen availability [4,5].

Meat, the flesh of animals suitable for use as food has a very high nutritional value and moisture content with pH value of 5.4, could serve as an excellent medium for microbial contamination growth and spoilage [6]. Contaminated raw meat is one of the main sources of food-borne illnesses [7,8] . Almaty is a large city with a population of more than seven million.

Due to overcrowding, poverty, inadequate sanitary conditions, and poor general hygiene, food-borne infections are on rise in the city. Raw meat available in open-air local retail shops without appropriate temperature control is purchased by approximately 23% households [9].

Meat is highly perishable; the rich source of nutrients of meat provides both pathogenic and non-pathogenic microbes a suitable environment for growth [10].

The widespread distribution of meat products therefore, makes the consequences of contamination with food poisoning microorganisms more serious [11].

Aims and goals of the Article

The aim of this work is to evaluate the microbiological quality of goat meat which found In Almaty city.

Materials and methods

Sample collection: four samples 500 gram of fresh goat meat was purchased from Ikram Boucher in Almaty Region. The samples were aseptically collected with sterile sampling containers, labeled and transported in ice packed cooler to the laboratory of Japan center of Kazakh National Agrarian University.

They were analyzed immediately on reaching the laboratory. The fresh meat were put under - 5 c temperature in freezer for seven days.

Then we began the laboratory examination of the goat meat for contamination.

For laboratory examination we used the below equipments and materials.

Hitter, flask 500ml, test tubes, pitter dish, pipit. Sesser, Microscope, thermostat, Agar, NaCL 0, 9% sol, Gram staining sol. We cultured meat sample for the colonies of pathogenic, aerobic and anaerobic bacteria. Then gram staining coloring for gram negative and positive microbe's detection.

Table 1: show the exact result of our study

No of Samples	Name of studies / tests	Normative document for studies / test methods	Normal indicator values	1st Research results / tests	2nd Research results / tests	Note
microbiological indicators						
142	Mesosphelic aerobic and facultative anaerobic micro organism/g, not more	Standard 10444.15-94	1×10^3	$1,6\times10^4$	$2,4\times10^4$	Exceeding micro org
	Pathogenic, specially Salmonella, 25 g of product	Standard 31659-12	Not allowed	25 g were not found	25 g were not found	
	(Coliforms) Escherichia coli bacteria	Standard 31747-2012	Not allowed	0,1 g were not found	0,1 g were not found	
	L.monocytogenes	Standard 51921-2002	Not allowed	25 g were not found	25 g were not found	

The results obtained from the fresh meat samples are shown in Table 1 .we did not find pathogen microbes in goat meat during my works.

The high microbial count enumerated from fresh goat meat samples indicated that the meat samples were contaminated. Microorganisms can easily be introduced either in the pre or post processing stages of meat processing [12]. The high coliform count observed from goat meat is assumed to be an indicator of fecal contamination. It is likely that the observed increase of fecal bacteria is due to problem associated with removal of the fleece and its coming into contact with the surface of carcass [12,13].

Enumerated the coliform in the majority of the meat samples and suggested that raw meat and meat products should be handled under strict hygienic condition and stored in cool places to avoid contamination and safe guard the health of consumers.

The high microbial load could be from the fleece of goat to the carcass surfaces during hide removal [14]. The area of highest contamination was those sites where cuts were made through the skin [15]. The finding of present study is a reflection of the unhygienic practices of meat processing in the developing countries [16].

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Results

Meat contamination has been observed that the inner tissues of healthy animals are sterile, however, contamination comes from external sources during bleeding, handling and processing.

During bleeding, skinning and cutting, the main sources of microorganisms are the exterior of the animal which includes the hide, hooves and hair and the intestinal tract.

The exterior of the animal habours large numbers and many kinds of microorganisms from the soil, wash water, feed and manure, as well as its natural surface flora and the intestinal contents contain the intestinal organisms. It has also been shown that during handling, contamination comes from carts, boxes or other containers, other contaminated meat, air and personnel.

These resulted in the increase in the microbial load of the fresh goat samples [17,3, 5].

The fresh goat meat sold to the public in open markets is grossly contaminated with coliform bacteria as well as other bacteria and fungi. This work has revealed that the fresh goat meat sold market is contaminated by both Gram positive and Gram negative bacteria.

The bacteria isolated were Pseudomonas species, Staphylococcus aureus, Bacillus species, Streptococcus species, Escherichia coli, Salmonella species and Proteus species.

This short article was conducted to examine the frequency of contamination in goat meat available in Almaty city Kazakhstan. The result showed that Goat meats were often contaminated with microorganisms due to unhygienic and poor sanitary conditions.

Most meat have high water content corresponding to the water activity approximately 0.99 which is suitable for microbial Growth. This work has revealed that the fresh goat meat sold market is contaminated by both Gram positive and Gram negative bacteria.

The bacteria isolated were *Pseudomonas* species*,* Staphylococcus aureus, Bacillus species, Streptococcus species, Escherichia coli, Salmonella species and Proteus species.

The organisms isolated are in line with the work of Turtura [19]; [18]; [20].

They reported that Gram negative bacteria account for approximately 69% of the cases of bacterial food-borne diseases. The presence of bacteria in meat has been widely reported from different parts of the world [20], according to my study we did not find pathogen microbes in the goat meat but mesophilic aerobic and facultative anaerobic bacteria were find in the meat resulting during slaughtering and cutting the meat, batchers must be slaughter animal in better sanitary situations and clean environment.

References

1. *Rao, V.A., G. Thulasi and S.W. Ruban,* 2009. Meat quality characteristics of non-descript buffalos as affected by age and sex. World Appl. Sci. J., 6: 1058-1065.

2. *Jackson, D. and C.H. McGowan*, 2001. Diet management effects carcass attribution and meat quality of young goat. Small Ruminant Res., 28: 93-98.

3. *Rombout, F.M. and R. Nout*, 1994. Food Microbiology and Hygiene. Encyclopedia of Human Biology, Academic Press, 111: 661-665.

4. *Forest, D.C., D.A. Harold, B.A. Judge and E.A. Robert*, 1985. Different Types of Meat and Meat Product Consumed by Nigerians. Principle of Meat Science; Pub. W.A. Freeman and Co. Pop, pp: 4-178.

5. *Frazier, W.C. and D.C. Westhoff*, 2004. Food Microbiology. 4th Edn., McGraw-Hill Book Company, New York, pp: 218-219.

6. *Lawrie, R.A.,* 1985. Meat Science. 4th Edn., Pergaman Press, Oxford, pp: 50-56.

7. *Bhandare S.G, Sherikarv A.T., Paturkar A.M., Waskar V.S., Zende R.J.*. (2007) A comparison of microbial contamination on sheep/goat carcasses in a modern Indian abattoir and traditional meat shops. Food Control 18: 854-868.

8. *Podpečan B, Pengov A, Vadnjal S*. (2007) The source of contamination of ground meat for production of meat products with bacteria *Staphylococcus aureus*. Slov Vet Res 44: 25-30.

9. *Anjum Q, Omair A, Ahmed Y, Shaikh S, Usman J, Qureshi F*. (2004) Frequency of Food Items among Households in a Low Socioeconomic Area of Karachi. J Pak Med Assoc 54: 580-582.

10. *Steinkraus, K.H.* Nutritional significance of fermented foods. *Foods Research International,* 27, pp. 259-267,1994.

11. *Macrae, R., Robinson, R.K. and Sailer, M.J.* Encyclopaedia of Science. *Food Technology and Nutrition,* 6, pp. 4233-4236, 1993.

12. *Ozlem, E.,* 2005. Microbiological properties of boneless sheep meat in Kahramanmaras. J. Vet. Anim. Sci., 29: 145-150.

13. *Chaubey, H., S.K. Purohit, R. Doshi, V. Joshi and V*. Chaudhary, 2004. Bacteriological quality of market raw goat meat and its public health important. J. Vet. Pub. Health, 2: 59-61.

14. *Bell, R.G., J.C.K. Harrison and A.R. Roger,* 1993. Preliminary Investigation of the Distribution of Microbial Contamination on Lamb and Beef Carcasses. Meat Industry Research Institute of New Zealand Technical Report No: 927. Hamilton, New Zealand.

15. *Bell, R.G. and S.C. Hathaway,* 1996. The hygienic efficiency of conventional and inverted lamb dressing system. J. Appl. Bacteriol., 81: 225-234.

16. *Bhandare, S.G., A.T. Sherikar, A.M. Paturkar, V.S. Waskar and R.J. Zenda*, 2007. A comparison of microbial contamination on sheep goat abia-hoir and traditional meat shops. J. Food Cont., 18: 854-858.

17. *Lawrie, R.A.,* 1984. The Preservation Effect of Smoke on Meat. Meat Science, Pergaman Press Inc. Maxwell House Fair View Park Elmford, New York pp: 49-52.

18. *Adak, G.K., S.M. Meakins, H. Yip, B.A. Lopman and S.J. O'Brien,* 2005. Disease Risks from Foods, England and Wales, 1996-2000. Emerging Infectious Diseases. Available from http://www.cdc.gov/nci drod/EID/Vol1No03/04-0191.htm

19. *Turtura, G.C.,* 1991. Enterobacteriaceae and other Gram. negative bacteria in slaughtered poultry. Microbiol Ailments Nutr., 9: 139-149.

20. *Clarence, S.Y., C.N. Obinna and N.C. Shalom*, 2009. Assessment of bacteriological quality of ready to eat food (Meat Pie) in Benin City Metropolis, Nigeria. Afr. J. Microbiol. Res., 3: 390-395.

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МИКРОБИОЛОГИЧЕСКОЕ ИССЛЕДОВАНИЕ МЯСА КАЗАХСКИХ ГРУБОШЕРСТНЫХ КОЗ

Аннотация

В статье приведены результаты изучения микробиологических исследовании мяса казахских грубошерстных коз разводимых в условиях «Икрам» Алматинской области, анализы показали, что в составе козьего мясо не обнаружены патогенных микробов и рекомендуется проводить убой животных в лучших ветеринарно-санитарных условиях.

Ключевые слова: микробы, мясо загрязненная, породы овец, гигиена, средства личной гигиены, грамм положительные и отрицательные бактерии.

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ҚАЗАҚТЫҢ ҚЫЛШЫҚ ЖҮНДІ ЕШКІ ЕТІНІҢ МИКРОБИОЛОГИЯЛЫҚ ЗЕРТТЕУ

Аңдатпа

Мақалада Алматы облысы «Икрам» шаруашылығында өсірілетін қазақтың қылшық жүнді ешкілерінің ет өнімнің микробиологиялық зерттеу жүргізіліп олардың құрамында құбылмалы микробтардың жоқтығы айқындалды және де сою жұмыстарын таңдамалы ветеринарлық-санитарлық талапқа сай орындарды жүргізілуіне ұсыныс жасалынды.

Кілт сөздер: микробтар, ластанған ет, қой тұқымдар, гигиена, жеке тазалық гигиенасы, оң және теріс грам бактериялары.

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УРОБАКТЕРИЯЛАРДЫҢ ІРІКТЕП АЛЫНҒАН ЖАҢА ШТАМДАРЫНЫҢ ҚОРЕКТІК ОРТАДА ӨСУ ҚАСИЕТТЕРІ

Аңдатпа

Мақалада спора түзетін уробактериялардың культуралдық қасиеті зерттелген. ЕПА, ЕПС, 5%-несепнәрімен, ЕПЖ және Рубенчиктің 5%- несепнәрімен белоксыз синтетикалық қоректік ортасында өсірілген. Осы орталарда олар әртүрлі өседі. Сол себепті спора түзетін уробактерияларды түрге дейін ажырата алмаймыз. Сондықтан оларды түрге ажырату үшін, морфологиялық, тинкториальдық және биохимиялық көрсеркіштерін есепке алу керек.

Кілт сөздер: Колония, диаметр, пигмент, культура, ЕПС, ЕПА, ЕПЖ, Рубенчик.

Кіріспе

Уробактериялардың кейбір штамдарының культуральдық қасиеттерін зерттегенде 4 қоректік ортада белокты: ЕПА (ет пептон агарында), ЕПС (ет пептон сорпасында) 5%-мочевинамен, ЕПЖ (ет пептон желатина) және белоксыз синтетикалық Рубенчик ортасында) 5%-мочевинамен, көңіл бөледі.

Тығыз қоректік ортада өсуі. Уробактериялар тығыз қоректік ортада 28-30^{0}С температурада жетіле келе осы түрге тән колония түзеді. Сондықтан колонияны сипаттау зерттелетін уробактериялардың түрін ажыратуда қажетті белгінің бірі болып саналады. Колонияны сипаттағанда келесі белгілерге көңіл аударады: колонияның пішініне (дөңгелек, амеба тәрізді, тамыр тәрізді жайылып өсуі т.б.), колония өлшемі(диаметр мм-мен; егер колония өлшемі 1 мм-ден аспаса, онда мұндай колонияларды нүкте тәрізді деп атайды), колониялардың оптикалық қасиеттері, (мөлдір, жартылай мөлдір, мөлдір емес, жылтыр, күңгірт, жарқылдақ), колония түсін ажыратқанда (колонияның түсіне, ортаға пигмент бөлеме немесе бөлмейме), колонияның беткі беті (тегіс, бұдыр, қатпарланған, төмпешікті), колонияның жаны (тегіс, ойыс, агардың ішіне кіре өсуі т.б.), колонияның шеті (тегіс, толқын тәрізді, қалақты), колония құрылымы (біркелкі, ұсақ немесе ірі дәнді), колонияның жұмсақтығы (майлы, қамыр тәрізді, жабысқақ, жарғақ тәрізді),[1,2,3]

Сұйық қоректік ортада өсуі. Уробактериялар сұйық қоректік ортада өскенде, ортаның лайланғанын, сорпа бетінде қабықша түзілуі немесе түбінде шөгінді түзілуі байқалады;