IJABBR- 2014- eISSN: 2322-4827

International Journal of Advanced Biological and Biomedical Research

Journal homepage: www.ijabbr.com

Original Article

Whey Protein Nutritional Power House of Future

Pradyut Kumar Mohanty*[1], Nikhil Nishant[2], Shilpa Luthra[3]

[1]Lecturer. Webuniv, New Delhi, India
[2]MSc Bioinformatics scholar, SMU, India
[3]MSc Biotechnology Scholar, Amity University, India

ARTICLE INFO

Article history:
Received: 04 July, 2014
Revised: 29 July, 2014
Accepted:18, August, 2014
ePublished:30 September, 2014

Key words:
Whey protein
Antibiotics
Tetracyclin
Amoxicillin

ABSTRACT

Objective: Whey protein is a byproduct of dairy industry, where cheese and casein are manufactured. This is the major protein content which is loss during the formation of yogurt and cheese. **Methods:** If this is added to the diet then that can enhance the nutritioal value for the diet, which will be very usefull. **Results:** In this study we try to find it out that the whey protein has the antibiotic effect, that much better than the antibiotic generally found in market. But this is not as much as better than the tetracyclin. But better than the common antibiotics like amoxicillin. So from the study we can conclude that the antibiotic which is used to provide strength against the different types of microrganism and also have the nutritional effect co that it can be use as a great nutritional element in future for the general house hold use and for the sport industry also.

1.INTRODUCTION

Whey or milk serum is the liquid remaining after milk has been curdled and strained. it is a byproduct of the manufacture of cheese or casein and has several commercial uses. sweet whey is manufactured during the making of rennet types of hard cheese like cheddar or swiss cheese. Acid whey (also known as "sour whey") is a by-product produced during the making of acid types of dairy products such as cottage cheese or strained yogurt.whey protein is a source of protein that might improve the nutrient content of the diet. Whey protein might also have effects on the immune system. Whey protein is likely safe for most adults when used appropriately. High doses can cause some side effects such as increased bowel movements, nausea, thirst, bloating, cramps, reduced appetite, tiredness (fatigue), and headache. Whey protein (derived from whey) is often used as a nutritional supplement, such supplements are especially popular in the sport of body building.

2. MATERIALS AND METHODS

For finding the activity of whey protein , we did some tests like antibiotic suseptibility test(ABST), and colony counting and study the rate of sensitivity Procedures are followed as : Choosing the Appropriate Antibiotic, Disk Diffusion Test, Prepare inoculum, suspension, Prepare inoculum, suspension, Select colonies.

2.1. Disc Diffusion Method

Procedure (Modified Kirby-Bauer method: National Committee for Clinical Laboratory Standards. NCCLS), approximately Mueller-Hinton broth (5ml) prepared. Pick 3-5 isolated colonies from plate Adjust the turbidity to the same as the McFarland No. 0.5 standard. Streak the swab on the surface of the Mueller-Hinton agar(3 times

***Corresponding Author:** Pradyut Kumar Mohanty, Lecturer. Webuniv, New Delhi, India. (pradyut.mohanty@gmail.com)

in 3 quadrants). Leave 5-10 min to dry the surface of agar.

2.2. Apparatus

Patri disc, micro pippet, centrifuge, test tube, conical flask, laminar air flow, sprit lamp, streaking needle, neubauer slide.

2.3. Sterilization

All the apparatus are heat sterilized under laminar air flow.

2.4. Sample collection

Sample is collected from the yogurt by thawing process and then properly centrifuged for collection of whey protein, and antibiotics are collected from the labratory, media is prepared by LB agar.

2.5. Growth

Bacteria are streaked on petri plates in first stage with 0.5µl on four paltes one plate is controlled, second plate is provided with antibiotic amoxocillin, third palte is with tetracycline and fourth plate with whey protein. This is done subsequently for 0.75µl and 1µl. This is done for 72 hours.

2.6. Counting

Colony counting is done by general counting and by neubauer slide.

3. RESULTS

Interpretation of results are depending on the bacterial growth and number of colonies formed at the laboratory conditions, in presence of different type of antibiotics(i.e. amoxicillin and tetracyclin).

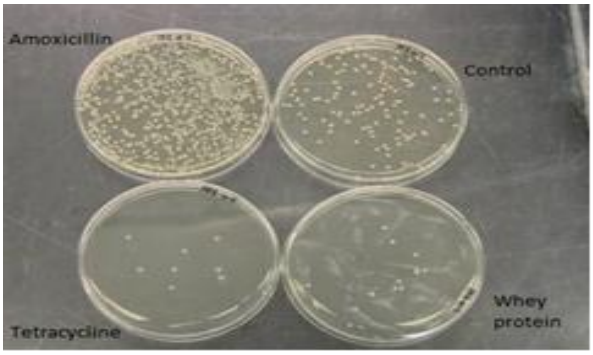

Fig . 1-Description of growth of bacteria E.coli in presence of antibiotics Amoxicillin and Tetracycline and also with whey protein with one control plate, when sample taken 0.5µl

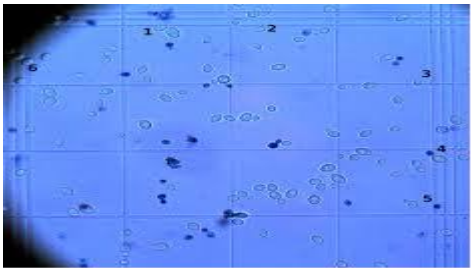

Fig. 2- acterial colony count by using neubauer slide

Table 1.

This shows number of colonies grow with presence of antibiotics and whey protein with differnt amount of sample

Sr no	sample	Number of colonies			
		amoxicillin	tetracycline	Whey protein	Controlled
1	0.5	42	8	17	75
2	0.75	87	18	40	110
3	1	132	43	67	150

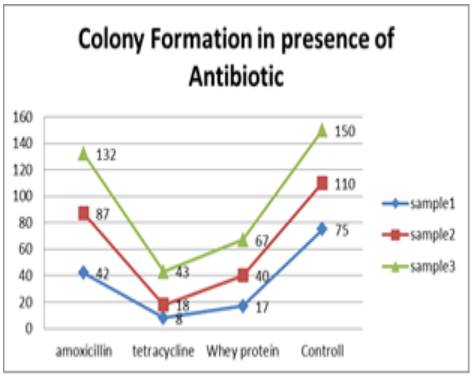

Fig. 3- acording to the table the garph genrated for the colony growth for differnt sample amount.

4. DISCUSSION

From the study it is found that the antibiotics having the capcity to resist bacteria to grow. But when we consider bacteria to grow in presence of the antibiotic amoxicillin and tetracycline, we found that tetracycline is the best antibiotic effect than amoxicillin. But when we consider the whey protein as one of the major food siplement and test its antibiotic effect, then it is found that the bacterial growth is resisted for the whey protein. This growth not as much as tetracycline but better than amoxicillin. So whey can also be used as the anitibiotic as well. Because it is used as a food supplement, though it has some negative effect, when taken in daily basis, but we can say if there is requirment for body which makes body immune, then person can be given whey protein as an antibiotics.

CONCLUSION

From the above study we conclude that, in this modern society we are using a vareties of antibiotics, but if we will use whey protein as food supplement and antibiotics, then it can avoid various types of side effect that caused due to an antibiotics, because this is a food suppliment and with antibiotic effect. So it can be nutritional power house in future.

REFERENCES

Baumgartner RN, Koehler KM, Gallagher D, et al.: Epidemiology of sarcopenia among the elderly in New Mexico [published erratum appears in. Am J Epidemiol 1999, 149(12):755-763.

Honda H, Qureshi AR, Axelsson J, Heimburger O, Suliman ME, Barany P, Stenvinkel P, Lindholm B: Obese sarcopenia in patients with end-stage renal disease is associated with inflammation and increased mortality. Am J Clin Nutr 2007, 86(3):633-638. PubMed Abstract | Publisher Full Text

Janssen I, Heymsfield SB, Ross R: Low relative skeletal muscle mass (sarcopenia) in older persons is associated with functional impairment and physical disability. J Am Geriatr Soc 2002, 50(5):889-896. PubMed Abstract | Publisher Full Text

Cuthbertson D, Smith K, Babraj J, Leese G, Waddell T, Atherton P, Wackerhage H, Taylor PM, Rennie MJ: Anabolic signaling deficits underlie amino acid resistance of wasting, aging muscle.

FASEB J 2005, 19(3):422-424. PubMed Abstract | Publisher Full Text

Volpi E, Mittendorfer B, Rasmussen BB, Wolfe RR: The response of muscle protein anabolism to combined hyperaminoacidemia and glucose-induced hyperinsulinemia is impaired in the elderly. J Clin Endocrinol Metab 2000, 85(12):4481-4490. PubMed Abstract | Publisher Full Text |PubMed Central Full Text

Yang Z, Hall AG: The financial burden of overweight and obesity among elderly Americans: the dynamics of weight, longevity, and health care cost. Health Serv Res 2008, 43(3):849-868. PubMed Abstract | Publisher Full Text |PubMed Central Full Text

Zamboni M, Mazzali G, Zoico E, Harris TB, Meigs JB, Di Francesco V, Fantin F, Bissoli L, Bosello O: Health consequences of obesity in the elderly: a review of four unresolved questions.

Walters SJ: Sample size and power estimation for studies with health related quality of life outcomes: a comparison of four methods using the SF-36. Health Qual Life Outcomes 2004, 25:2-26.

Ferrando AA, Paddon-Jones D, Hays NP, Kortebein P, Ronsen O, Williams RH, McComb A, Symons TB, Wolfe RR, Evans WJ: EAA supplementation to increase nitrogen intake improves muscle function during bedrest in the elderly. Clin Nutr 2010, 29(1):18-23. PubMed Abstract | Publisher Full Text

Katsanos CS, Chinkes DL, Paddon-Jones D, Zhang XJ, Aarsland A, Wolfe R: Whey protein ingestion in elderly persons results in greater muscle protein accrual than ingestion of its constituent essential amino acid content. Nutr Res 2008, 28(10):651-658. PubMed Abstract | Publisher Full Text |PubMed Central Full Text

Schoeller DA, Ravussin E, Schutz Y, Acheson KJ, Baertschi P, Jequier E: Energy expenditure by doubly-labeled water: water validation in humans and proposed calculations.

Am J Physiol Endocrinol Metab 1986, 250:R823-R830.

Dietary guidelines for Americans. 6th edition. Washington, DC: US Department of Health and Human Services; 2005.

Campbell WW, Trappe TA, Wolfe RR, Evans WJ: The recommended dietary allowance for protein may not be adequate for older people to maintain skeletal muscle. J Gerontol A Biol Sci Med Sci 2001, 56:M373-M380. PubMed Abstract | Publisher Full Text

Wolfe RR: The underappreciated role of muscle in health and disease. Am J Clin Nutr 2006, 84(3):475-482. PubMed Abstract | Publisher Full Text.