A R T I C L E   I N F O

Whey Protein Nutritional Power House of Future

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A B S T R A C T

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 nutritional value for the diet, which will be very useful. 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 microorganism and also have the nutritional effect so 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 susceptibility 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
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 laboratory, media is prepared by LB agar.

2.5. Growth

Bacteria are streaked on petri plates in first stage with 0.5µl on four plates one plate is controlled, second plate is provided with antibiotic amoxicillin, third plate 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](image1.png)

**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](image2.png)

**Fig. 2**- acterical colony count by using neubauer slide.

**Table 1.**

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

<table>
<thead>
<tr>
<th>Sr no</th>
<th>sample</th>
<th>Number of colonies</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>amoxicillin</td>
</tr>
<tr>
<td>1</td>
<td>0.5</td>
<td>42</td>
</tr>
<tr>
<td>2</td>
<td>0.75</td>
<td>87</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>132</td>
</tr>
</tbody>
</table>
4. DISCUSSION

From the study it is found that the antibiotics having the capacity 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 supplement 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 antibiotic 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 requirement for body which makes body immune, then person can be given whey protein as an antibiotic.

CONCLUSION

From the above study we conclude that, in this modern society we are using a variety 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 supplement and with antibiotic effect. So it can be nutritional power house in future.

REFERENCES


