



Research Article

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## To assess the acceptability of fibre fortified drinking water

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### ABSTRACT

Studies had shown that fiber fortified water aids the prevention of cancer and heart disease by cleansing the body of built up toxins. Present sample survey was done to formulate fiber-enriched water providing a favorable texture while incorporating enough soluble fiber in to the system to meet a high fiber claim. The present assessment study was designed to check the acceptability of fiber fortified water as compared to simple water. The study was carried out in Sahara Hospital Lucknow. Total sample comprised of 30 people belonging to hospital. Sensory evaluation form was used to examine the acceptability of the product. All respondents were asked to taste samples of water which was coded A and B. Appearance wise there was no difference in both the sample they both look alike. Fortified sample had very insignificant aroma which could be felt only after drinking it. Visually it was free from any solutes. Pungent taste was observed by the people. Overall acceptability of fortified water was very well, except for aftertaste. The product could further be improved by either calibrating its dosage amount and by neutralizing its taste.

**Keywords:** Hemp Fiber, Soluble Fibers, Dietary Supplement, and Fiber enriched water

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### INTRODUCTION

Water fortified with soluble fiber is the only way to add significant soluble fiber to your diet with no sweeteners, no preservatives and nearly no calories. [1] This fortified water can also be used to enhance the fiber content of foods and or the other beverages such as Tea coffee, sherbets, soups etc. fortification of water essentially provides two key factors that are necessary for body to function normally- water (to sustain life) and fiber (to cleanse the system), thus it could be a beneficial dietary supplement to prevent the consequences of toxins and cleanse the system of the impurities that already exist. [3]

Studies had shown that fiber fortified water aids the prevention of cancer and heart disease by cleansing the body of built up toxins. It also helps to curb appetite and produce satiation, preventing the over-eating habits that lead to obesity. [2] This fortified water provides a very real and substantial medical benefit for everyone. Further for Hospital use especially for tube feeding patients who cannot get enough fiber or whose system cannot handle roughage; this fortified water can be of great help. [1]

Soluble fiber ingredients are the most relevant to today's beverage market because their low viscous properties make them popular choice for fortification of beverages. [5] With novel fiber ingredients availability greater opportunities are there to develop creative drinks that can enhance the fiber intake. Fiber formulation can pose many challenges, such as unwanted effect on mouth feel and texture, the presence of off-flavor, issues with digestive tolerance or degradation of the fiber content due to processing. [4], [6]

Present sample survey was done to formulate fiber-enriched water providing a favorable texture while incorporating enough soluble fiber in to the system to meet a high fiber claim.

### MATERIALS AND METHODS

The present assessment study was designed to check the acceptability of fiber fortified water as compared to simple water.

**Locale of Study:** The study was carried out in Sahara Hospital Lucknow.

**Sample size:** Total sample comprised of 15 people belonging to hospital

**Tools and Techniques used:** sensory evaluation form was used to examine the acceptability of the product. Sensory evaluation form comprised of various criteria like Appearance, Aroma, Texture, after taste etc. Also blank space was provided so that people can write other quality if excluded.

**Procedure:** All respondents were asked to taste samples of water which was coded A and B (A comprised of simple water and B is fiber fortified water). After tasting both the samples they were asked to fill the sensory evaluation form.

**Classification and Tabulation:** results were classified and tabulated on the basis of the information collected from the sensory evaluation form.

**Standardization of the Sample:** As per the product dose we were supposed to take 2.5gm of fiber per 500ml of water. Our standardized glass capacity was 200ml. therefore to make the sample of 3litre (200ml\*15=3000ml), we added 15 gm. of product.

### RESULTS AND DISCUSSION

Table 1- Appearance

SERIAL NO.	SAMPLE SCORES	
	SAMPLE A	SAMPLE B
1	2	4
2	4	3
3	2	4
4	4	2
5	3	2
6	4	2
7	4	3
8	3	4
9	3	3
10	3	3
11	2	4
12	4	3
13	5	4
14	3	3
15	1	2
TOTAL	47	46
MEAN SCORE	3.13	3.06

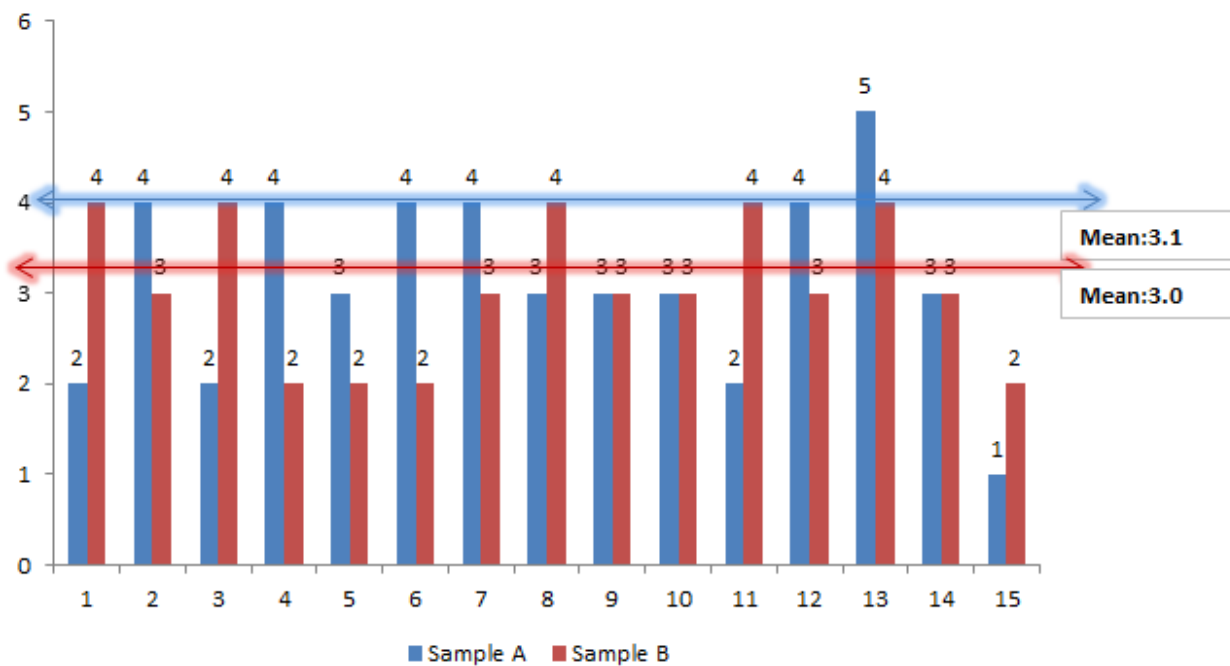


Figure 1

Table 2- Aroma

SERIAL NO.	SAMPLE SCORE	
	SAMPLE A	SAMPLE B
1	2	3
2	4	4
3	2	4
4	4	3
5	4	2
6	4	2
7	4	2
8	3	4
9	3	3
10	3	3
11	3	3
12	3	4
13	5	4
14	3	4
15	1	3
TOTAL	49	48
MEAN SCORE	3.26	3.20

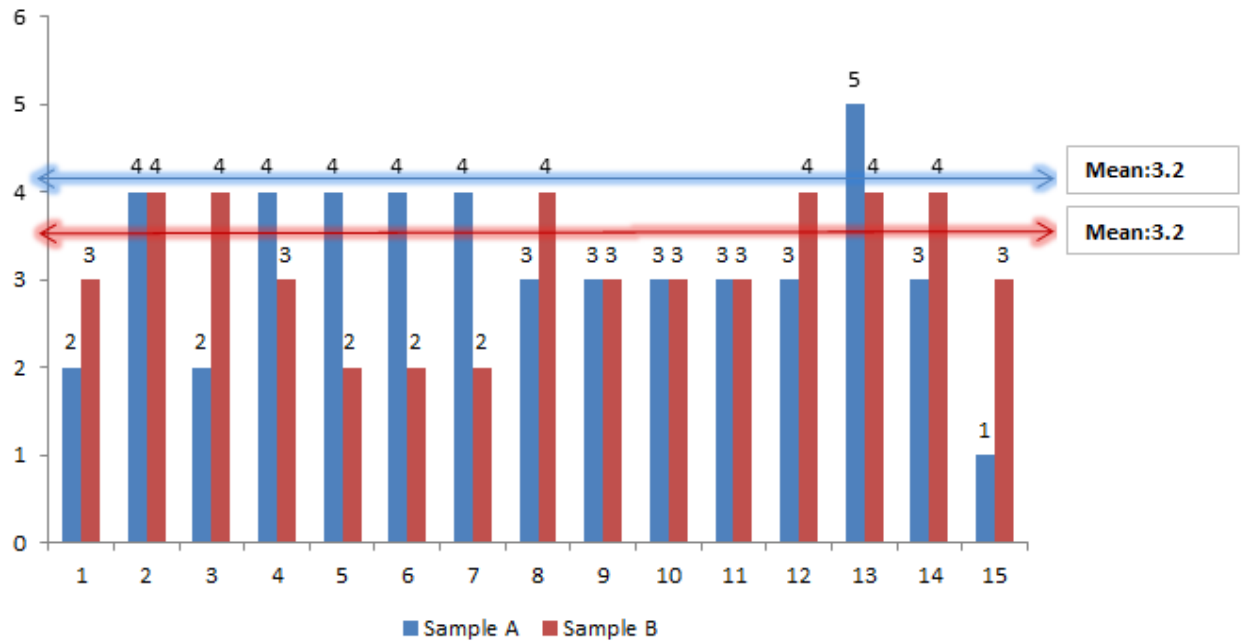


Figure 2

Table 3- Texture

SERIAL NO.	SAMPLE SCORE	
	SAMPLE A	SAMPLE B
1	3	3
2	4	3
3	2	4
4	4	2
5	3	2
6	5	1
7	4	2
8	3	4
9	3	3
10	3	3
11	3	4
12	4	3
13	4	3
14	3	3
15	1	2
TOTAL	49	42
MEAN SCORE	3.26	2.80

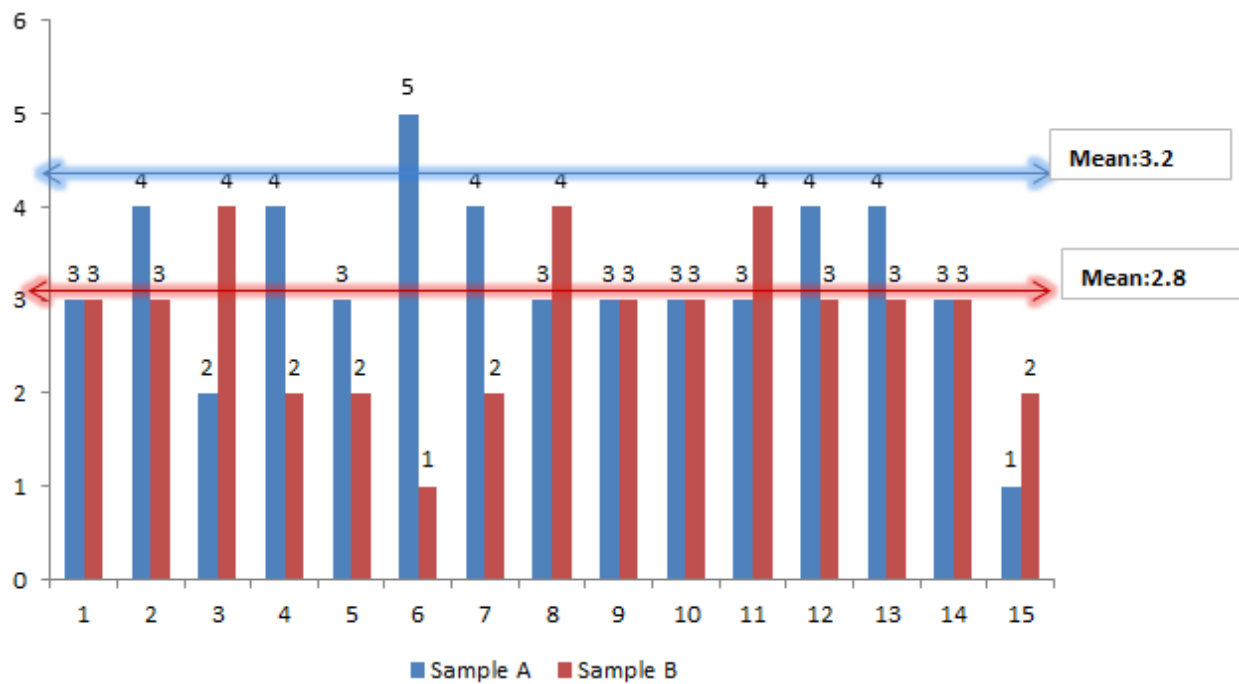


Figure 3

Table 4- After taste

SERIAL NO.	SAMPLE SCORE	
	SAMPLE A	SAMPLE B
1	2	4
2	4	2
3	2	4
4	4	2
5	4	3
6	5	1
7	5	1
8	2	4
9	2	4
10	3	3
11	3	4
12	4	5
13	3	4
14	2	4
15	2	3
TOTAL	47	48
MEAN SCORE	3.13	3.20

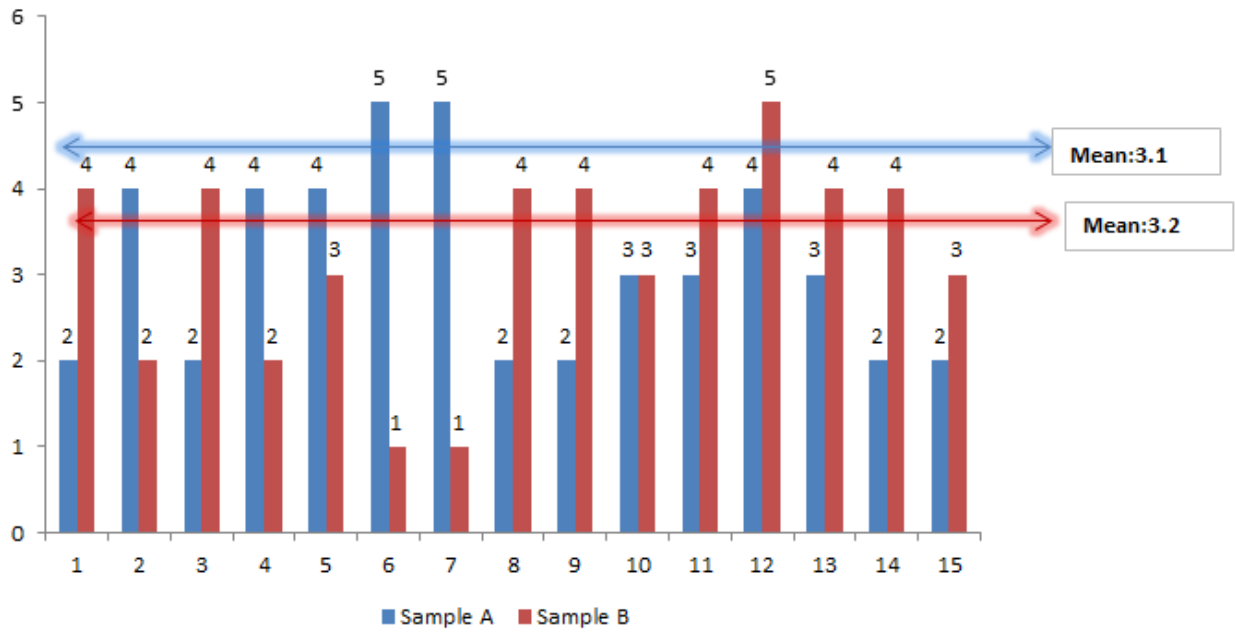


Figure 4

Table 5- Overall acceptability

SERIAL NO.	SAMPLE SCORE	
	SAMPLE A	SAMPLE B
1	2	3
2	4	3
3	4	4
4	4	2
5	3	4
6	5	1
7	5	2
8	3	4
9	3	4
10	3	3
11	4	2
12	3	4
13	5	4
14	3	4
15	2	3
TOTAL	53	47
MEAN SCORE	3.53	3.13

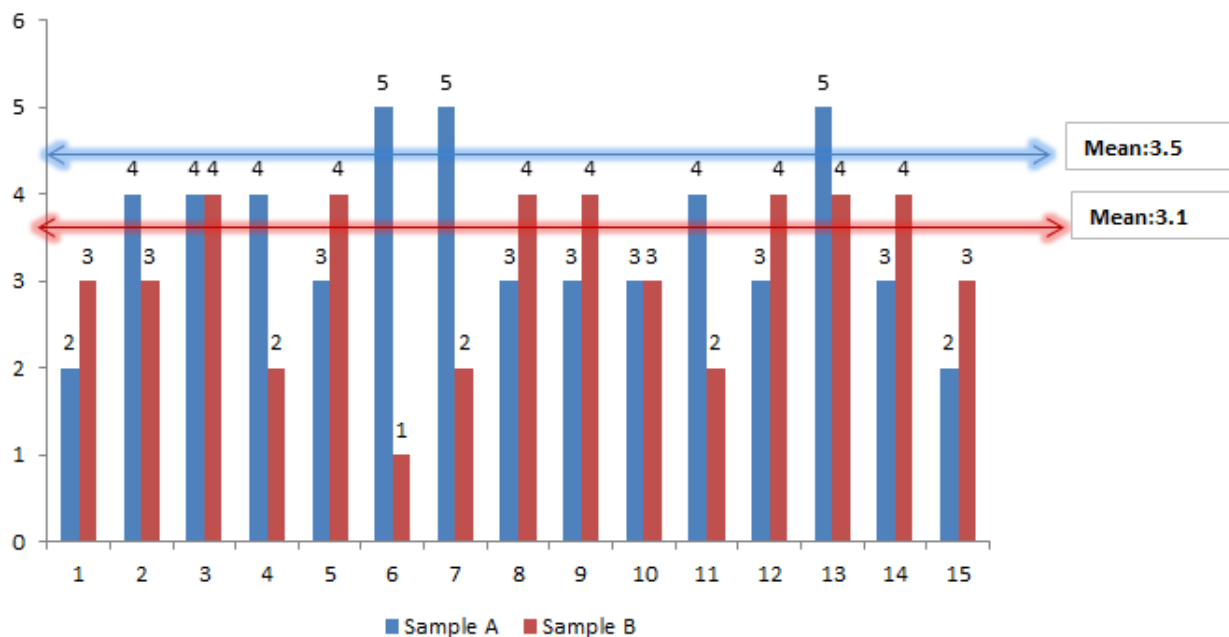


Figure 5

## CONCLUSION

15 samples selected for the study presented their view about the product that is fiber fortified water. Confidentiality was maintained as they did not know which sample had the fortified water. On the basis of the results drawn, following conclusions can be drawn about the fortified water as compared to the simple water.

- Appearance wise there was no difference in both the sample they both look alike.
- Fortified sample had very insignificant aroma which could be felt only after drinking it.
- While comparing the texture of both the samples fortified water appeared to be little granulated (microscopic in nature) which could be felt after tasting, visually it was free from any solutes.
- After taste of fortified water need to be enhanced further so that it could be as neutral as normal water. Pungent taste was observed by the people.
- When people were explained about the benefits of fiber they appreciated the innovativeness and accepted as medicinal supplement. However showed little apprehensions for total replacement of normal water with fortified water.
- Overall acceptability of fortified water was very well, except for aftertaste.
- The recommended dose as suggested was 2.5-3.5gm/ 500ml of water. Sample was prepared with 200ml of water which further reduced the amount of fiber to 1gm/200ml of water. Still people could feel the after taste.

The product could further be improved by either calibrating its dosage amount and by neutralizing its taste. Regarding the nutritional value of the fiber fortified water; nutritional value can be enhanced if the quantity of fiber is approx. in the following category:

- High source of fiber: 5 g or more per serving
- Good source of fiber: 2.5 g to 4.9 g per serving
- More or added fiber: At least 2.5 g more per serving

Our dosage amount entitles our product to be a good source of fiber. Nutritive value of fiber in terms of benefits is explained earlier, in terms of nutrients the amount needs to be further calibrated.

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