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Shalini Pandey

Research Scholar, College of Home Science, C.S. Azad University of Agriculture and Technology, Kanpur, Uttar Pradesh, India

Neelma Kunwar

Professor, C.S. Azad University of Agriculture and Technology, Kanpur, Uttar Pradesh, India

Role of barley flour product and its impact on human health

Shalini Pandey and Neelma Kunwar

Abstract

Barley is the fourth most important cereal crop in the world after rice, wheat and maize and has the highest dietary fibre content. Barley plant is a Rabi cereal crop from the grass family *Poaceae*. Barley crop is mostly found in cooler and semi-arid part of the world. Barley is a widely adaptable crop. It is currently popular in temperate areas where it is grown as a summer crop and tropical areas where it is sown as a winter crops 987y. Its germination time is one to three days. Barley grows under cool conditions but is not particularly winter hardy. It is believed that barley was originated in the Middle East. During the ancient time it was mainly grown for human consumption but nowadays barley production is also used for animal feed, malt products and human food. β -glucan, a polysaccharide and soluble dietary fibre, has great potential as a nutraceutical ingredient. For human consumption, it is largely consumed by the poor classes either as flour for chapati making, pure or mixed with wheat or gram flour, or as parched grains to make sattu. In Bihar and West Bengal, the poor as a staple food consume dehusked barley.

Keywords: Role, product, impact

Introduction

Barley is a rich source of nutrients like protein, B vitamins, niacin, dietary minerals, and dietary fibre. The grain is a particularly good source of manganese and phosphorus Research suggests that barley consumption is beneficial in several 99ways. It reduces cholesterol levels in the blood, improves the regulation of blood sugar, and has other health benefits too. However, since barley contains gluten, it is not recommended for people with gluten-related disorders. Some people have tried the barley diet that focuses mostly on barley porridges, and they claim to have lost up to 4 kg in 7 days.

Objectives

1. To study socio- economic status of respondents and assess the nutrition parameter of selected women.
2. To assess the acceptability of the developed products and recipes through sensory evaluation.

Methodology

The study was conducted in Jaunpur district. District was divided into 13th localities. six localities were randomly selected, namely Mariahu, Shahganj, Kalichabad, Olandganj, Haripur, Sihipur. 300 sample sizes were selected. Dependent and independent variables were used such as age, education, caste, knowledge, nutritional status etc. the statistical tools were used such as percentage, chi -square test, correlation- coefficient (r).

Results

Table 1: Distribution of women age according to age

Age group	Low income	Medium income	High income	Total
30 – 40 years	30 (10.0)	33 (11.0)	15 (5.0)	78 (26.0)
40 – 50 years	26 (8.7)	57 (19.0)	72 (21.0)	155 (51.7)
50 – 60 years	24 (8.0)	30 (10.0)	13 (4.3)	67 (22.3)
Total	80 (26.7)	120 (40.0)	100 (33.3)	300 (100.0)
χ^2	29.308**			$p < 0.01$

(Figures in brackets denotes the percentage of respective values)

Corresponding Author:

Shalini Pandey

Research Scholar, College of Home Science, C.S. Azad University of Agriculture and Technology, Kanpur, Uttar Pradesh, India

As women get older, they suffer with many digestive problems, to resolve this problem they need to get more nutrients for their body. There is different type of cereals available in the market. Barley is one among them, which is

very helpful to resolve digestive problems in body. In spite of all these many type of diseases like cardiovascular disease, diabetes, cancer, constipation, and bone related problems are common after age of 30, which decreases our immunity.

Table 2: Barley recipes and their nutritional value and health benefits for human being

Barley recipes	Frequency	Nutritional value	Health benefits
Barley lassi	153 (51.0)	CHO-50 g, protein-12 g, vit.-C-2.5 mg, vit.-A-48 mg	Support healthy skin, lower risk in heart attack, improves anaemia
Barley kheer	141 (47.0)	CHO-67.3 g, Protein-317 g, Fat 67.9 g, Ca-33 mg	Maintain bones and blood level
Barley paratha	221 (77.0)	Fibre-13 g, Protein-16 g, CHO-77.7 g, Na-12 mg	Lower LDL, cholesterol, decrease kidney disease
Barley Sattu juice	285 (95.0)	Protein-206 g, Fat-72 g, CHO-652 g	Control weight, boost mood, improves blood sugar
Barley vegetable soup	198 (66.0)	Protein-14 g, CHO-40.5 g, Vit.-A-223 mg, Fe-6 mg	Lower cholesterol, lower heart problem, good skin health
Barley apple cinnamon	24 (8.0)	Calories-348 Kcal, CHO-47 g, protein-16 g, fibre-14 g, Fe-31 mg	Reduces weight, help in digestion
Barley vegetable Khichdi	66 (33.0)	Protein-8 g, Fibre-8 g, Mg-1.56 mg, K-11.2 mg	Maintains blood pressure, lower bad LDL Cholesterol, reduces constipation
Grain in herby butter milk	75 (25.0)	CHO-67.3 g, Protein-317 g, Fat-67.9 g, Ca-33 mg	Reduces diabetes, reduces heart problem, improves digestion
Barley lemon water	15 (5.0)	Vit.-C-12 mg, CHO-10 g	Increases muscle, helps in loose weight
Barley flour uttapams	93 (31.0)	CHO-20.13 mg, Protein-9.02 g, Fibre-7.9 g	Reduces night snacking
Barley laddu	126 (42.0)	Protein-49 g, Ca-521 mg, Fe-9.8 mg, CHO-19 g, Fibre-1.4 g	Prevents diabetes, improves digestion, helping wounds heal.
Barley papadi	27 (9.0)	CHO-8 g, Fat-3 g, Na-40 mg, K-50 mg, Vit.-C-1 mg, Fe-1 mg	Protect eyes, boosts immunity, reduces arthritis, promotes healthy bones and teeth.
Barley ravaidli	78 (26.0)	K-150 mg, Fe-1.7 mg, CHO-80 g, Protein-13 g	Maintains blood level, reduces kidney damage.
Barley vissoto	18 (6.0)	Energy-1062 Kcal, CHO-171.9 g, Protein-35.7 g, Fat-25.8 g	Maintains blood level, reduces kidney damage
Barley stuffed peppers	15 (5.0)	Na-268 mg, Protein-860 mg, Fibre-13 gm	Reduces anaemia, reduced cataracts.
Barley vegetable pullav	78 (26.0)	Energy-354 Kcal, Fibre-17.3 g, Protein-12 g	Reduces constipation, reduces kidney stone, makes strong bones.
Barley malt	12 (4.0)	Vit-D-12.5 mg, Na-364 mg, Fibre-9 g, Protein-26 g	Prevent diabetes, increase muscle mass
Barley milk and honey porridge	69 (23.0)	P-221 mg, Fibre-18 g, Protein-10 g, CHO-18 g	Boost metabolism, lower high bold pressure
Barley halwa recipes	168 (56.0)	Fat-2.14 g, Fibre-4 g, Vit-C-9.7 mg, Ca-15.9 g	Reduces constipation, boost immunity
Barley vada	66 (33.0)	Energy-354 Kcal, Carbs-73 g, Fat-10 g, Protein-12 g	Reduces bad blood cholesterol, lower high blood pressure
Barley cutlet	69 (23.0)	Protein-31 g, Fat-4 g, Cho-23 g, Energy-241 Kcal.	Boosts immune system, keeping intestine healthy
Barley corn salad	165 (55.0)	Protein-g, CHO-19 g, Vit-C-3.6 mg, Fibre-1 g	Prevents diabetes, wound healing, improves digestion
Barley mushroom Khichda	51 (17.0)	Potassium-318 mg, Fibre-1 g	Prevents heart problem
Barley paneer soup	99 (33.0)	Fat-33g, Calorie-402Kcal, Protein-25g	Boosts immune system, maintains cholesterol level
Barley dosa	78 (26.0)	Fibre-2.73 g, K-210 mg, Mg-20 mg, Vit-B-20 mg	Reduces cholesterol level, supports healthy heart.

(Figures in brackets denotes the percentage of respective values)

Barley is a rich source of essential nutrients that help to keep the body fit and healthy. Drinking barley water every morning

helps flush out all toxins from body and improves overall health.

Table 3: Distribution of women awareness regarding nutritive values in barley recipes according to their socio-economic status

Nutrients in barley recipes	Awareness (%)		
	Low income	Medium income	High income
Protein	2.0	45.0	50.0
Energy	5.0	40.0	60.0
Fat	–	–	10.0
Carbohydrate	–	35.0	70.0
Fibre	–	25.0	70.0
Calcium	2.0	15.0	50.0
Iron	–	10.0	35.0
Vitamin B ₆	–	15.0	25.0
Sugar	–	–	–
Sodium	–	1.0	5.0
Potassium	–	–	5.0
Magnesium	–	–	–
Zinc	–	1.0	4.0
Vitamins	–	5.0	25.0

Barley's high fiber content helps food move through own gut and promotes a good balance of gut bacteria, both of which play important roles in digestion. Due to its nutritional value barley is particularly helpful as it strengthens body's immune system and reduces the chances of cold and flu. Iron improves the blood volume and prevents anemia and fatigue. Moreover, it aids in smooth functioning of the kidney and the development of body cells. It works as a diuretic that increases urination and flushes out toxins from the body. Barley water is an excellent solution for kidney stones and cysts too. This drink is recommended in children and adult age groups daily till the urine infection subsides. Though fibre is essential to maintain good gut health and bowel movement, an excess can irritate the stomach. Barley is a rich source of essential nutrients that help to keep the body fit and healthy. Drinking barley water every morning helps flush out all toxins from the body and improves the overall health. Then apply barley water on the skin, it reduces acne and fights skin infection. Barley can also brighten the skin tone by acting as a gentle exfoliator and controlling oil secretion. As the age of women increases, their weight also increases. There are many reasons for this like as heredity, lack of exercise and yoga, over-eating etc. sometimes cholesterol level in blood increases, which can grow in any kind of person thin or fat, which is harmful for health. Barley water and barley roti is very useful to reduce cholesterol level in body.

Table 4: Distribution of women acceptability of consumption of supplement foods according to their socio-economic status

Supplement foods	Low income	Medi.....um income	High income
Daily			
Barley water	–	2.0	30.0
Barley flour	3.0	10.0	5.0
Barley tea	–	20.0	40.0
Pearl barley	–	20.0	60.0
Roasted barley	–	40.0	80.0
Barley flex	–	–	25.0
Weakly			
Barley water	–	–	25.0
Barley flour	2.0	5.0	15.0
Barley tea	–	10.0	35.0
Pearl barley	–	30.0	50.0
Roasted barley	–	20.0	60.0
Barley flex	–	20.0	40.0
Monthly			
Barley water	–	–	20.0
Barley flour	4.0	15.0	25.0
Barley tea	–	15.0	30.0
Pearl barley	–	20.0	30.0
Roasted barley	–	10.0	50.0
Barley flakes	–	3.0	20.0
Occasionally			
Barley water	–	–	50.0
Barley flour	6.0	10.0	16.0
Barley tea	–	20.0	50.0
Pearl barley	–	10.0	20.0
Roasted barley	–	15.0	35.0
Barley flex	–	3.0	40.0

Barley has an overall better mineral profile. It is richer in all types of minerals compared to rice. Barley is richer in magnesium, potassium, iron, copper, phosphorus, selenium, magnesium, and zinc. It is important to note that both barley and rice are low in sodium. Whole grain barley is very high in

dietary fiber, which allows it to be digested slowly. Combined with a high level of magnesium, whole grain barley is considered an incredibly beneficial food for diabetics and those with a high risk for developing diabetes. Barley is a nutrient-rich grain that helps reduce hunger and can help lose weight. Its rich fibre content also improves digestion. Furthermore, barley consumption helps prevent gallstones, lowers cholesterol, and reduces the risk of heart disease and diabetes. Barley can also help prevent colon cancer, regulate blood pressure, improve bone health, reduce inflammation, reduce symptoms of arthritis, repair body tissue etc.

Conclusion

Barley is a valuable crop, in which fibre found in large quantities and which is beneficial for human being. Barley comes under Shree Anna Yojna. Being millets International Day-2023, its importance has increased.

Recommendations

1. Barley is a cereal grain with a chewy texture and mild, nutty flavour. Women should develop barley product because it has high fiber content, barley can make a great alternative to more refined grains.
2. Barley is nutrient rich and makes a satisfactory meal. It is packed with fibre and essential minerals such as: selenium, copper, tryptophan, and manganese. It gives you energy and keeps you feeling satisfied for a good part of the day.

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