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Health benefits of Buckwheat (*Fagopyrum esculentum*)

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Buckwheat (*Fagopyrum esculentum*) is also known as common buckwheat or kuttu ka atta, which belongs to polygonaceae family. Buckwheat is introduced into the diet as an alternative crop of renewed interest due to its nutritive & health promoting value. Buckwheat is a rich source of protein, crude fat, fiber, mineral & flavonoid. Mineral content in buckwheat is comparatively higher than common cereal crops. It is rich in complex carbohydrate, a broad-leafed herbaceous annual, has variety of beneficial properties and its gluten free nature plays an important role in prevention of celiac diseases. It is rich in antioxidants and phytochemicals like uercetin, rutin, epicatechindimethylgallate, fiber so it is beneficial to hypertensive people. About 100gm of buckwheat provide 343 calories, 3.4 gm lipid, 71.5 gm of carbohydrate & 10 gm of fiber. Buckwheat flour has highest protein (19.0 gm) content among all cereals. The amino acids in buckwheat protein are well balanced & rich in lysine, methionine, histidine & tryptophan which are lacking in wheat & barley. Other health benefits of buckwheat include antihypertensive, antihyperlipidemic, anti-diabetic, anticancer and anti-inflammatory properties. In the present study, the water absorption capacity of buckwheat flour was found lower than that of refined wheat flour, whereas oil absorption capacity of buckwheat flour was found higher than that of refined wheat flour. From proximate analysis, the content of moisture, ash, carbohydrates, fats, proteins, crude-fiber, iron, magnesium were recorded in terms of percentage as 11.5, 1.85, 70.8, 5.31, 10.43, 5.23, 1.85 and 1.62 respectively. The energy content of buckwheat flour was calculated to be around 373 kJ. Different products of buckwheat products had prepared like bread, biscuits, idly, laddu. Statistical analysis showed that bread prepared with 70 % buckwheat flour, biscuits prepared with 25 % buckwheat flour and idly prepared with 50 % buckwheat flour has maximum scores in overall acceptability. The data of the current study indicates that 25 percent buckwheat flour (BWBS2) incorporated biscuit had better sensory properties (colour, appearance, aroma, texture, taste etc. as compared to 100% wheat flour biscuits. These optimized buckwheat biscuits were kept at room temperature (29-30 °C) for 3 months and analyzed for their shelf life at 0, 15, 30, 45, 60, 75 and 90 days and sensory characteristics by using the Nine-point hedonic scale and microbiological analysis by using Pour Plate Technique. The result showed that optimized buckwheat biscuit can be consumed up to 75 days of storage. However, the microbial load of buckwheat biscuits was within the acceptance range for 3 months of storage i.e., they can be stored up to 3 months and are also safe for consumption. About 100 gram of buckwheat products (roti, bread, biscuits, idly) daily given to newly diagnosed stage 1 and 2 adult hypertensive patients for three months along with the standard of care treatment. The control group was advised to follow lifestyle modification and antihypertensive medication (Amlidipine) only whereas case group was taken buckwheat along with amlodipine medicine. Biochemical (lipid profile), anthropometric (weight) and clinical (blood pressure, pulse rate) parameters were recorded at baseline and after 2 weeks, 6 weeks and 12 weeks for both the groups. At the end of 12 weeks; biochemical, anthropometric and clinical parameters improved in the cases as compared to controls. *Fagopyrum esculentum* (Buckwheat) consumption is beneficial for hypertensive patients and has a favorable impact on lipids.

Publications

1. Cytokine Storm and Mucus Hypersecretion in COVID-19: Review of Mechanisms in Journal of Inflammation Research, Volume 14, 2021.
2. Antihypertensive and Hypolipidemic properties of *Fagopyrum esculentum* (buckwheat) in patients of early stage Hypertension in International journal of food and nutritional sciences, Volume 11, issue 5, pg 69-76, 2022.
3. Attitudinal determinants of fasting in type 2 diabetes mellitus patients during Ramadan, JAPI: Journal of the Association of Physicians of India 2011 Oct; 59:630-4.

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Biography

Nigar Naqvi is currently working as a “Consultant Dietician” in Era’s Lucknow Medical College & Hospital and has published various research papers in different nation and international journal which includes Book chapter in Spinger and some chapters are under communication.

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