



BROAD BEAN A MULTIPURPOSE LEGUME VEGETABLE CROP

**Popular
Article**

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ABSTRACT

Broad bean, like other beans, is a good source of calories, protein, carbohydrates, and fibre. It is also rich in phosphorus, iron, potassium, and vitamin B complex. However, the occurrence of some antinutritional factors such as phytohemagglutinins, protease inhibitors, polyphenols, saponins, phytates, etc. has hampered a wider nutritional utilization of this legume. Although an incredible crop, unfortunately in India it is categorized as minor, underutilized, less utilized, and still not fully exploited crops. It is rabi pulse / legume of Northern plains and grown during rainy season in the foothills. It is a wonderful legume which can grow in profitable manner in wide range of pH (5.5 to 9.0) and ability to excel under almost all type of climatic conditions coupled with its wide adaptability to all range of soil environment.

Introduction

Broad bean (*Vicia faba* L.), is third most important feed grain legume after soybean (*Glycine max*) and pea (*Pisum sativum* L.), at global level. It is among the oldest crops in the world. Faba bean is widely used in the Mediterranean region as a source of protein in both human and animal nutrition. In India, it is popularly known as Kala Matar and Bahela. Processed or boiled faba bean have lesser anti-nutritional factors as compared to the raw ones. Keeping all the points in mind, processed or boiled faba bean should be consumed along with other sources of protein to avoid the ill-effects of antinutritional factors and to have health benefits of its consumption. Protease inhibitors are at much lower (2%) concentrations compared to what is contained in soybeans and moreover their effect is less acute than soybean, but there is need to promotion and more awareness generation among the users. Faba bean can be used in a variety of ways right from ethnic food, modern culinary uses food, traditional medicinal uses as well as in modern medical science.

Ethnic food uses

Cultivated faba bean is used for human consumption in developing countries and as animal feed, mainly for pigs, horses, poultry and pigeons in industrialized

countries. It can be used as a vegetable green or dried, fresh or canned. It is a common breakfast food in the Middle East, Mediterranean region, China and Ethiopia. The most popular dishes of faba bean are Medamis (stewed beans), Falafel (deep fried cotyledon paste with some vegetables and spices), Bissara (cotyledon paste poured onto plates) and Nabet soup (boiled germinated beans). Feeding value of faba bean is high, and is considered in some areas to be superior to field peas or other legumes. It is one of the most important winter crops for human consumption in the Middle East. Faba bean has been considered as a meat extender or substitute and as a skim-milk substitute. Sometimes, it is grown for green manure, but more generally used for stock feed purpose. Large-seeded cultivars are used as vegetable. Roasted seeds are eaten like peanuts in India. Straw from faba bean harvest fetches a premium in Egypt and Sudan and is considered as a cash crop. The straw can also be used for brick making and as a fuel in parts of Sudan and Ethiopia.

Culinary uses

Since it has a strong taste many Mediterranean, Chinese, Indian, Italian and other countries use faba beans for flavour and texture. These beans are usually picked off the plants in late summer while they are still

young and tender. They will continue to produce until late autumn. Just like pea pods, the faba bean need to be de-shelled, cooked and then peeled. It is a long task however very rewarding to those who can wait. One of the simple and favourite things to do with faba bean is to mash them with olive oil and put a little salt and put the spread on baguette bread as a snack. Faba beans are eaten while still young and tender, enabling harvesting to begin as early as the middle of spring for plants started under glass or over-wintered in a protected location, but even the main crop sown in early spring will be ready from mid to late summer. Horse beans, left to mature fully, are usually harvested in the late autumn. The beans can be fried, causing the skin to split open, and then salted to produce a crunchy snack. These are popular in China, and also in Thailand where their name means “open-mouth nut”. Some of the important dishes prepared in different parts of world are as under.

Stewed faba bean (Fool Medames)

Most people eat stewed faba bean for breakfast and supper as well as in sandwiches at any time of the day. Many additives such as oil (cottonseed oil), salad, spices (pepper and cumin), lemon juice and eggs are used, while cheese is a usual adjunct of faba bean dishes. The sandwiches of stewed faba bean consist of almost 80 per cent bread (prepared from wheat flour) and about 20 per cent cooked faba bean mixed with oil, salt, spices, and salad. The dried seeds are stewed in about twice their volume of boiled water, on a flame which is only high enough to keep the content gently boiling for 10-12 hours until the beans become soft. Soaking the beans in water before cooking shortens the cooking time. The cooking time for dried beans may also be shortened by pressure cooking, in which case fat must be added to prevent excessive foaming, which could prove dangerous as the vent of the pressure cooker may be clogged. Stewed beans, cooked under pressure, cook down to less volume than beans cooked gently. The green immature pods of faba bean or stewed faba bean can also be cooked in tomato sauce prepared from fried onion, fat, spices, and tomato juice.

Bean cakes (Falafel or Taamia)

The most common way of preparing faba bean is in the form of dried cakes, which are widely used in the

Middle east as a breakfast and supper delicacy, usually in sandwiches containing 70 per cent wheat bread, 20 per cent falafel and 10 per cent green salad. The decorticated dried beans are soaked in water for 12 hours and then the water is drained off. Small amounts of garlic, spring onion, parsley, dill, and spices (salt, pepper, and cumin) are added for flavouring. The mixture is then crushed into a thick paste. When ready, the mass is removed from the mortar and allowed to stand for some time. The paste is finally shaped into small, round pieces and deep-fried in boiling cottonseed oil until the surface turns from green to a uniform brown.

Germinated beans (Fool Nabet)

Germinated and cooked faba bean is a traditional meal in Egypt. The dried seeds are soaked in water for about 12 hours then germinated for three days. The germinated beans are then cooked in boiling water for about one hour and served after adding spices, fried garlic or onion, and pieces of dried bread (Nabet soup). In the preparation of stewed faba bean (medames), the cooking time required to reach the optimum eating quality varies among cultivars. The so-called “soft” cultivars which cook in a shorter time are preferred over the “hard” cultivars. The cooking quality of faba bean can be evaluated by the following parameters. Cuisines of the world feature the versatility of Faba Bean. In the Azores they like to shell the green beans, and then split and fry them. Burmese folks like the fresh shelled beans in salads. One often finds parched dried faba in Chinese snack mixes. The Dutch and Danish use the dried boiled beans in soups. Egyptians like to drain the boiled beans and serve them with olive oil, garlic, and lemon – yum and the French use the immature beans, pods and all, much like green beans are served in North America. One does not have to go far to find ethnic recipes for faba bean. A simple search on the Internet with the country of your choice, a slash, the words “faba bean,” another slash, and the word “recipes,” ought to turn up plenty. One can even find recipes for the edible leaves (Faba Leaves / recipes) but one might not have to go as far as the Internet. If one has a collection of ethnic, gourmet, or garden related recipe books, he probably already has lots of tips just waiting to try.

Canned faba bean

Faba bean consumed in the home are often prepared through hydration and cooking to achieve the desired palatability and this method of preparation is very time- and energy consuming. A canned product that simplifies or eliminates the preparation process in the home and offers long storage life may be of some value in the market-place. Experience has shown that quality changes such as unfavourable colour development and water-soluble vitamin losses will take place during canning. These changes are further complicated by the additives, such as the disodium salt of ethylenediaminetetraacetic acid (Na EDTA) and sodium bicarbonate (NaHCO₃), used during processing. Soaking of faba bean for 12 hours in NAEDTA solutions (50 ppm, 100 ppm and 150 ppm) only caused a slightly lighter bean colour, soaking in bicarbonate solution (0.5 per cent, 1.0 per cent, and 1.5 per cent) increased both the drained weight and the softness of the cooked beans, and it also made the bean colour darker. The mechanism of loss for riboflavin and thiamine during the processing of faba bean was mainly leaching; very little thermal destruction was observed. None of the soaking treatments affected the retention of these vitamins.

Ethnic and traditional medicinal uses

In ancient Greece and Rome, beans were used in voting, a white bean being used to cast a *yes* vote, and a black bean for *no*. Pythagoras called on his disciples to abstain from beans. It is, however, uncertain whether they were meant to abstain from eating beans or from involving themselves in politics. In Ubykh culture, throwing beans on the ground and interpreting the pattern in which they fall was a common method of divination (favomancy), and the word for “bean-thrower” in that language has become a generic term for seers and soothsayers in general. In Italy, broad beans are traditionally sown on November 2, All Souls Day. Small cakes made in the shape of broad beans (though not of them) are known as *favedeimorti* or “beans of the dead”. According to tradition, Sicily once experienced a failure of all crops other than the beans; the beans kept the population from starvation, and thanks were given to Saint Joseph. Broad beans subsequently became traditional on Saint Joseph’s Day

altars in many Italian communities. Some people carry a broad bean for good luck; some believe that if one carries a broad bean, one will never be without the essentials of life. In ancient Greece and Rome, beans were used as a food for the dead, such as during the annual Lemuria festival. In some folk legends, such as in Estonia and the common Jack and the Beanstalk story, magical beans grow tall enough to bring the hero to the clouds. The Grimm Brothers collected a story in which a bean splits its sides laughing at the failure of others. Dreaming of a bean is sometimes said to be a sign of impending conflict, though others said that they caused bad dreams. Pliny claimed that they acted as a laxative. European folklore also claims that planting beans on Good Friday or during the night brings good luck. As a folk medicine, it can be used as diuretic, expectorant or tonic.

Medicinal uses

Potential use of faba bean is in the treatment of Parkinson’s disease, because it is good source of levadopa(L-dopa); a precursor of dopamine, as a result of Parkinson’s disease affected persons unable to synthesize dopamine which regulate motor cells. L-dopais also a natriuretic agent, which might help in controlling hypertension. Some also use faba bean as a natural alternative to drugs like Viagra, citing a link between L-dopa production and the human libido. Epidemiological and *in vitro* studies which suggest that the hemolysis resulting from favismacts as protection from malaria, because certain species of malarial protozoa such as *Plasmodium falciparum* are very sensitive to oxidative damage due to deficiency of glucose 6- phosphate dehydrogenase enzyme, which would otherwise protect from oxidative damage via production of glutathione reductase.

Health issues

Although it is most notably known for its medicinal and culinary properties, it can be dangerous to one’s health, especially children.Faba bean contains small amounts of several possible antinutritional factors, however, their effects are less acute, and protease inhibitors are at much lower (2%) concentrations compared to soybeans. Inhalation of the pollen or ingestion of the seeds may incite the condition known as favism, a severe hemolytic anemia, perhaps causing

collapse. It is an inherited enzymatic deficiency occasional among Mediterranean People. The genetic disorder occurs in about 1% of whites, 15.0% of blacks. Faba bean contains other objectionable factors including, cyanogens, favogens, phytic acid, tannins, and tripsin inhibitors. The anti-nutrients and toxins are associated with the seed coat, sprouting the seeds generally reduces the level of toxins. Faba bean though of having better nutritional quality and less antinutritional factor than soybean only needs attention, awareness generation and promotion through all means. Further this can be easily grown in any situation. It is among the best sources of lysine rich protein.

Conclusion

Faba bean, has been since a long time remained an underutilized crop. It has a wide nutritional utility as it is a good source of protein, carbohydrates, fibre and is rich in phosphorous, iron, potassium and vitamin B complex. The bean is used for flavouring Mediterranean, Chinese, Indian, Italian and other dishes and also has medicinal uses. The bean has not been exploited to the fullest because of lack of awareness about its nutritive value.

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