

Baobab to turn the EU market 'upside down'

Baobab fruit pulp may soon be sold as an ingredient in smoothies and cereal bars in Europe. The company PhytoTrade Africa has recently submitted an application to the UK Food Standards Agency to approve baobab fruit pulp as a novel food ingredient. The application includes the use of the fruit pulp in a range of food and beverage products, such as de-pectinised pulp in biscuits and confectionery. **Chris Louw** reports.

This baobab tree near Tshipise, Limpopo, is the centrepiece of a bush lapa.

THE BAOBAB (*ADANSONIA digitata*) is probably the most well known tree in Africa. Widely known as the "upside down tree", its fruit pulp is said to have an antioxidant property about four times stronger than that of kiwi or apple pulp. The medicinal and other qualities of the bark, pulp and seeds have long been known by Africans. The pulp is consumed to treat fever, diarrhoea, malaria, haemoptysis and scorbutic complaints (vitamin C deficiency). The bark and leaves are useful in the treatment of fever and reported to have anti-inflammatory and diaphoretic properties (a substance which raises internal body temperature and induces perspiration). The seed is either pulped and applied externally, or taken with water to cure gastric, kidney and joint diseases. In the Kalahari, San Bushmen use the seeds as an antidote to strophanthin, a common plant-derived arrow poison.

Scientific tests have proven that the main nutrients in the pulp include vitamin C, riboflavin, niacin, pectin and citric, malic and succinic acids, while the oil contains the vitamins A, D and E. The pulp is reported to be prebiotic and stimulates the body's intestinal microflora. It has high levels of carbohydrates, calcium, potassium, thiamine and nicotinic acid, with appreciable quantities of tartaric acid and potassium bitartrate.

According to Cyril Lombard, market development manager of the Southern African natural products trade association

PhytoTrade Africa, the level of fruit pulp in smoothies and cereal bars would be between 5% and 15%. PhytoTrade Africa intends to market a baobab fruit pulp with the pectin removed as an ingredient for use in products such as confectionery. Pectin can thicken a product or make it more creamy, which can limit the ways in which it is used. The seeds contain pulp with numerous uses. As an oil it is semi-fluid, golden yellow and gently scented, and is strongly non-siccative (non-drying), and has a longer shelf life than many other oils. The oil is useful in cooking and cosmetics,

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and has a faint aroma making it suitable for massage and natural products. According to research conducted by PhytoTrade Africa in 2003, the vitamin C content of the fruit averages 300mg per 100g, nearly six times higher than an orange. Baobab is also rich in vitamins B1, B2, phosphorus, iron, trace elements and protein. It contains essential fatty acids and polysaturated fatty acids, which lend medicinal and food value. Baobab has a long shelf life, making it suitable for international shipping and storage.

The issue, however, is that baobab fruit pulp is a novel food in Europe – a food or food ingredient that didn't have a significant history of consumption

in the EU before 15 May 1997. Before a new food product is introduced into the European market it must be assessed for safety. In the UK, the assessment of novel foods is conducted by an independent committee of scientists, the Advisory Committee on Novel Foods and Processes (ACNFP) that is appointed by the UK Food Standards Agency (FSA).

If successful, the application will underline the growing popularity of exotic ingredients derived from Africa. While some extracts such as devil's claw, honeybush and rooibos are available in Europe and

elsewhere, novel products such as baobab tree extracts still need to gain approval. However, PhytoTrade Africa, in collaboration with SA company Afriplex, has been working to ensure the ingredient's acceptance into the European ingredients market. "We've been working for some time with Afriplex on the baobab fruit. With its history of safe and traditional use on the continent, this is one of Africa's most exciting species. Its nutritional profile and properties, and inherent market appeal, make it an interesting novel ingredient for the food and beverage industry," says Lombard.

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Baobab facts and features

There are few African trees with a greater array of traditional uses than the baobab. As a food, its leaves are commonly eaten as a relish, especially in times of drought, and its fruits are a favourite of cattle herders and children across Africa. When dissolved in milk or water, the resultant liquid is taken straight as a drink, or as a sauce for food, a substitute for cream of tartar in baking, and a fermenting agent in traditional brews. The seeds, which may be eaten raw or roasted, yield an edible oil which is a useful substitute for vegetable oil, and are sometimes ground to produce a coffee-like hot beverage.

African baobab trees are mainly found in South

Africa, Botswana, Namibia, Mozambique, Zimbabwe and Madagascar. Baobab dried fruit pulp is derived from the fruits of the tree.

On pollination by fruit bats, the tree produces large green or brown fruits. Different parts of the fruit are a traditional food in these countries.

The baobab grows in arid, semi-arid and sub-humid tropical climates. A baobab's lifespan can be between 1 000 and 3 000 years, and the tree is such a rich reservoir of mythology, folklore and medicines that it has become emblematic of Africa.

It can grow to enormous heights and some trees are up to 25m tall. The branches are short and twisted;

and its roots are shallow but wide spreading to take advantage of the infrequent but heavy downpours of the savannah regions of Africa where it grows abundantly in its native environment. The baobab is also found naturally in Madagascar and Australia and has been planted in the Caribbean.

Baobabs store water and nutrients in their trunks to survive the dry season. The trunk is hollow and a large tree can hold up to 9 000 litres of water. A hole with a stopper (bung) is commonly installed at the base of the tree to allow water to be removed. A line of such trees across the Kalahari once functioned as oases that helped travellers to cross the desert.

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Baobab uses in Africa

Africans often use the inner, fibrous bark of the baobab tree to make string, rope, fabric, netting, brooms, and more recently filters and paper, especially for monetary bills.

At the end of the dry season, the baobab displays large white flowers that hang on long stalks. The flowers only open at night and are pollinated by nectar-feeding bats. The hard, gourd-like fruit can be ground into flour to bake bread (hence the name monkey bread tree) or to make a nutritious drink. The seeds are roasted and ground into a peanut butter-like substance and used as a source of cooking oil. Even the wood of this tree is sometimes eaten.

Although the extremely high moisture content of the wood (40% or above) renders it unusable as a timber, its bark makes an excellent fibre, used in basket, rug and rope-making, and has been used to make fishing nets, animal snares, sacking and even strings for musical instruments.

All parts of the tree are extensively eaten by animals and the bark is especially popular with elephants who strip away large sections at a time. Because the tree has good regenerative properties this has little long-term impact.

The baobab has many medicinal applications. The bark, which contains several flavonols, has been sold commercially in Europe under the name "cortex cael cedra" as a fever treatment and substitute for cinchona bark. Because the seed contains almost equal parts of palmitic, oleic and linoleic acid (as well as some small quantities of stearic and cyclopropenoid acids), they are also used in the cosmetics industry.

The seed cake and shells from the fruit are a useful stock feed, and high in protein, calcium, vitamin B1 and vitamin C.

PhytoTrade Africa is a non-profit trade association that promotes sustainable production and fair trade, contributing to the economic development of Southern African countries. It helps African rural producers to develop and market their natural products for export. The company provides marketing, technical advice, research and development, and advocacy services to its members. Clients can be linked directly to source suppliers, quality control assurances, ecological product profiles, and receive help with import/export regulations and contracts. PhytoTrade Africa provides a clearing house for research and development information on African natural products.

It is Africa's only trade association dedicated to the development of a fair trade

and environmentally sustainable natural products industry. "We work on behalf of our members to develop products and partnerships for the benefit of Southern Africa's people and biodiversity," Lombard says.

The ACNFP is a non-statutory body of scientific experts that advises the UK's FSA on any matters relating to novel foods (including genetically modified foods) and novel processes (including food irradiation). The committee conducts safety assessments on any novel food or process submitted for

approval under the European Commission novel food regulation. As well as information on the nutritional content of the baobab fruit, the application also has details of the way in which the fruit and closely related species have been used in different countries, both as a general foodstuff and for particular ceremonial uses. It also discusses the environmental impact of harvesting the fruit.

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A 2 500-year-old baobab tree near Leydsdorp in Limpopo. This tree was hollowed out and used as a pub by gold miners during the gold rush in the 1890s.