



Agribusiness in Sustainable Natural
African Plant Products

Shea Butter

Botanical name	<i>Vitellaria paradoxa</i> (Gaertner.f.) Hepper, (<i>syn. Butyrospermum paradoxum, ssp. parkii</i>)
Family name	Sapotacea
Commercial name	Shea butter, Karite
Vernacular names	Nkuto, Karite, Burraa

Traditional and Modern Medicinal, Cosmetic and Nutritional Applications

Shea butter (*Vitellaria paradoxa* from West Africa and *V. nilotica* from East Africa) has been used for centuries in Africa for its unsurpassed ability to maintain and protect the skin from environmental damage and for cosmetic and food purposes. Shea Butter is used externally to protect the skin from sunburn, eczema, as skin rejuvenator, and for its exceptional healing qualities in scalp and hair care. The edible butter and used in the manufacturing of cocoa butter equivalent (solid fraction), and high quality Swiss chocolates, as well as a base for high quality cosmetics, and more recently in the aromatherapy industry. Shea butter is also used in the care of household pets as well as farm animals. Most shea butter products are manufactured manually, and in general without the use chemicals or bleaching agents.

For centuries, Africans massaged it on their body after washing, to relax muscles and soften the skin, especially during the dry/hot seasons. Shea butter has been used to treat sprains, wounds and colds. It is used as an after-shave and a hair balm as it fixes dry, brittle and damaged hair. In tropical Africa, animal husbandry is practically impossible due to the presence of sleeping sickness, caused by the tsetse fly. Many Africans depend on shea butter as their substitute for the valuable dairy butter, and it is used internally as a natural source of antioxidants and vitamin E. Mothers, who can afford the product use it frequently in diapers to avoid rashes and apply it to the skin of infants, and even apply it to the umbilical cord of newborn babies to facilitate rapid healing. The moisturizing and soothing properties of shea butter are largely due to the high content and composition of the essential fatty acids, such as triglycerides, unsaponifiables and waxy esters. The seed kernels contain about 50% of a fat consisting mainly of stearic (36-47%) and oleic (33-50%) acids. The unsaponifiable fraction (2-11%) is composed of phenols: tocopherols, triterpenes (α -amyrin, lupeol, butyrospermol, parkeol), steroids (campesterol, stigmaterol, β -sitosterol, α -spinasterol, delta-7-avenasterol) and the polyisoprenic hydrocarbon kariten (up to 2%). Due to its richness in cinnamic acid, and other components, shea butter can be used in the formulation of sun products against UV rays, skin lotions, and shampoos. Clinical observations suggest that shea butter increases local capillary circulation, which in turn increase tissue re-oxygenation and improves the elimination of metabolic waste products. It has anti-oxidizing and regenerating properties due to its richness in tocopherols, and other substances. French dermatologists tested 35 people, of different age, sex and racial backgrounds, for a period of ten days to 5 months, with shea butter for skin disorders ranging from dry and wrinkled skin to serious burns, rashes. They observed substantial healing in all cases, with no adverse effects.

Shea butter is highly regarded in the cosmetic field because of its high emolliency and moisturization capacities, but also as an occlusivity lipid replacement. It is also believed that its unsaponifiable content is beneficial for healing of damaged skin. Moreover, in current cosmetic practice, the trend toward the use of natural materials has become fully entrenched and as such, the demand for quality shea butter is very likely to increase. Shea butter also offers a high potential as a carrier material for essential oils used in aromatherapy. New products from shea butter are likely to increase as the product shows such promise as a moisturizer and retaining the elasticity of the skin. The unusually high content of unsaponifiables, also makes it an excellent fattening agent in

soap making. Cosmetic and soap making industries can use shea butter to formulate cosmetics, soaps, shampoos, creams and balsams for hair and other skin cleansing and rejuvenating products. Shea butter is a safe product that can replace animal or bird products.

Historical Background

Shea butter was not known in Europe before the seventeenth century. The tree has been called the “God Send” to the people of Africa. Found in the African Savannah, the tree is long-lived, fruiting only once a year, and developing the “Karite” nut. Africans hand-pick the nuts, then extract the oil by boiling it and finally refining the product into the ‘shea butter’.

Ecology and Botany of Shea Butter

Shea is native to tropical Africa, reaching upwards of 12 to 20m high, its branches are short and thick, with a greyish bark, red inside, deeply sprung and the cork of which divides into small irregular quadrangular prisms, very resistant to bush fires. The branches, more or less spreading, are short, thick, with ring-shaped rolls, bearing leaves at the end only. The leaves are large isolated, membranous, covered with a brownish down when young, tough and glabrous when adult. The fruit is a greenish-yellow ellipsoidal or spherical berry, harvested when fully mature, in June.

Cultivation and Processing

Shea butter nuts are normally obtained from trees growing wild in Tropical Africa. While trees can be more than a hundred years old, it is difficult to estimate the age of the trees. The genetic diversity and types of nuts among differential populations is not well understood. The cultivation of the trees is not yet well studied due to the long years of its growth, and the common practice of collecting from wild populations. It may require upwards of 15 to 25 years to bring a new planting into fruition. The trees are usually well protected because of their economic values. Though very resistant to bush fires, many young tree stands have been decimated in East and West Africa due to over-harvesting for construction and fuel needs.

The processing of the shea butternuts is generally performed by women and children, either manually or by a hydraulic presses (i.e. from truck jacks). In West Africa, a horizontal screw press was built to extract shea from the nuts, allowing the processing of up to 30kgs of nuts/hr versus 50kgs in three days. For export, shea butter needs to be refined, neutralized, bleached and deodorized, to meet the standards of the importer and consumers.

References

- Boffa et al. 2000. *Agroforestry Systems*, 49: 153-175
DeMoss, S. 2001: Horticultural Information on the Shea Nut Tree. USAID R&RS Service Project.
Badifu, G.I. O. 1989. *Lipid composition and analysis* 2 (3): 238-244.
Farinu.G.O. 1986. *Food Chemistry*. 22 (4): 315-320.
Kershaw, S.I. and J.E. Hardwick. 1986. *Oleagineux* 41(12):567-570
Loszner, G. 1986. *Beitrage zur Tropischen Landwirtschaft und Veterinermedizin*, 24 :29-34.

Compiled by: Dan Acquaye, Marianna Smith, Wudeneh Letchamo, Paul Angers and Jim Simon

Send inquiries for product and price to
Dan Acquaye, West African ASNAPP Regional Coordinator, Accra, Ghana
dan@tnsgh.org or, Jim Simon, Ph.D: jesimon@aesop.rutgers.edu
ASNAPP at the Center for New Use Agriculture and Natural Plant Products
Rutgers University, Cook College, 59 Dudley Road, Foran Hall, New Brunswick, N.J. 08901 U.S.A.

ASNAPP was created to help develop the natural products sector in sub-Saharan Africa by promoting income-generating activities for rural entrepreneurs in such a way that improves the livelihoods of rural communities. ASNAPP does not derive any profit from its activities but seeks to build capacity for the development of sustainable high quality natural plant product businesses in a socially and environmentally sensitive manner. ASNAPP-SB-10-2001.

