



# Fruits for the Future Ndjanssang

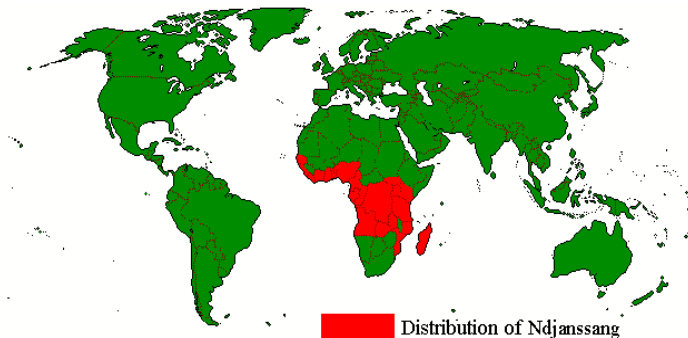
International Centre for Underutilized Crops.

Factsheet No. 10. April 2004



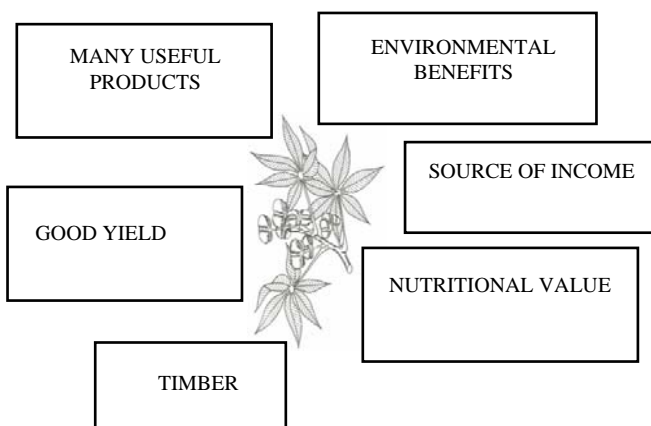
**What is ndjanssang?** - The scientific name of the ndjanssang tree is *Ricinodendron heudelotii* (Baill.) Pierre ex. Pax. and it belongs to the family Euphorbiaceae. It is a fast-growing, large tree reaching on average 20-30m in height. The trunk is sometimes winding with buttresses at the base and long running roots. The branchlets are covered in dense brown hairs when young. The slashed, exposed wood is dark red and densely mottled with scattered pits. The bark is smooth and grey in colour, 1-1.5 cm thick, becoming scaly with age. The sapwood is white or pale yellow, darkening on exposure and very soft. The leaves are digitately alternate, composed of long elliptic leaflets from 10-15 cm in length and 3-10 cm in width. The flowers are 4-5 mm in size and are yellowish-white in colour. They are arranged in clusters or panicles, the male panicles are up to 40 cm long and

the female ones are shorter and stouter. The fruit is 2-3 lobed with a thick, hard shell. It is said to have a smell of overripe apples. It contains 2-3 red-brown-black, rounded, flat seeds, over 1 cm in diameter. The seeds are edible but are not valued as food where ever the tree is found. It is a dioecious (having male and female trees), deciduous tree, which begins fruiting after 7-10 years. A number of myths surround the tree including the belief that 'collar crack' disease will occur on a cocoa farm if the tree is cut down, and that application of bark ash to the faces of hunters (Liberia/Ivory Coast) enables them to kill all the elephants they see.



**Where does the ndjanssang tree grow?** - The tree is endemic to tropical Africa. The distribution spans from Senegal to East Africa and Madagascar. Although the ndjanssang tree occurs in the rain forest, it is also typically found in along the fringes of secondary forests. It is common throughout the semi-dry, wooded, savannah zone of Africa. The altitude range is 200-500 m, with a mean annual temperature of 18-32°C. It prefers medium textured, freely draining and acidic soils. The species grows wildy in the tropical zone of Africa, which is characterised by an equatorial hot and humid climate with typically two rainy seasons per

year, and in two dry seasons. The natural distribution zone of ndjanssang is characterised by abundant rainfall, the minimum annual rainfall being 1000 mm. Peak flowering occurs in March, at the end of the dry season and lasts for approximately 2-3 months. The fruiting season is from August to December, coinciding with the rainy season.



**Why should you grow the ndjanssang tree?** - Ndjanssang has a high potential for improving the nutrition and income of the rural poor according to user surveys. The kernels contain the essential fatty acids linolenic, linoleic and oleic as well as other fatty acids. Essential fatty acids are necessary in the diet as humans cannot synthesise them. They support the cardiovascular, reproductive, immune and nervous system. The kernels are the main product which is sold in local markets. They are a good source of oil which can be used for cooking, or making soap and varnish. The marketing of ndjanssang is sustainable because only the ripe fruit is collected. The tree can produce up to 4000 fruits per year.



Ndjanssang being sold at Mfoundi market, Yaounde Cameroon

**Economics of ndjanssang** - This species is among the most economically important indigenous fruit species in parts of West Africa, accounting for a significant proportion of local and Cameroon border trade in NTFPs. The kernel is traded widely and is a significant form of cash income for many farmers. The kernel is also exported in considerable quantities to neighbouring countries. In Europe, they are frequently found in the stalls of shops specialising in tropical products. Between January and July 1995, 172 tons of seeds were traded in the humid lowlands of Cameroon for a value of US\$460,000.



Veg. propagation of ndjanssang in non mist propagators, Cameroon



Rooted leafy stem cuttings of ndjanssang Cameroon



Planted out trees of ndjanssang Cameroon

**How do you grow ndjanssang?** - The ndjanssang tree can be propagated by seed and vegetatively. When propagated by seed, pre-treatment such as scarifying (cutting) the seed coat or soaking in water can increase the germination by 60%. Seedlings are usually raised by direct sowing; however, although the tree displays many characteristics which make it suitable for cultivation, it is rarely planted. This is because it is difficult to obtain quality stock and the seeds do not germinate readily. In

addition, there is great difficulty in distinguishing between the male and female trees when they are at the seedling stage. Vegetative propagation methods can be of great value in overcoming these problems, by enabling desirable characteristics to be maintained and by increasing the availability of quality stock materials. Propagation by leaf cuttings can provide over 80% success rate. Cuttings should be collected from young, vertical, non-woody branches with healthy, young leaves. It is advisable to place the cuttings in a propagator to maintain the moisture levels. The cuttings should be cut with a sharp knife to 3-5cm maintaining at least 1 node with 2 leaves. Part of the leaf can be removed to reduce transpiration, however approx. 8 cm<sup>2</sup> should remain for the greatest success. This provides the cuttings with carbohydrate through photosynthesis. It is advisable to apply rooting hormone (although not essential) to the bottom of the cutting before placing in the medium as this increases the number of roots produced. The preferred rooting medium is sawdust. Rooting usually begins after about 2 weeks. One of the key management activities of this species is protection of the young trees against pests and diseases, mainly weevils and borers.



Mother drying out ndjanssang for household consumption in Elig Nkouma Cameroon

**What are the uses of ndjanssang?** - The seeds are the primary food source of the ndjanssang, however the leaves are also used as a vegetable in cooking. The seed kernels can be eaten after boiling in water, in sauces, or mixed with fish, meat or vegetables as a flavouring, they can also be roasted and made into a paste. The seed bears about 47% by weight of a light, yellow oil with a sweet taste. It can be used in varnish and soft soaps and has industrial applications as a waterproofing material. The seeds are used in Sierra Leone in rattles for bundu dances. They are also used by the Nigerian Igbo in a game called 'okwe', and in Cameroon, in a game called 'songo'. The dull, white wood is fibrous, soft, light and perishable. It is used for rough planks, coffins, boxes and crates, fishing net floats and rafts for heavy timbers. It is curved into fetish masks, spoons, ladles, cups, plates, platters, bowls, dippers and stools. In the Democratic Republic of Congo, the wood is used for making drums, which are said to be very sonorous, and in southern Nigeria, Gabon and Angola, it is carved to make the whole or the resonant parts of musical instruments. It is considered a good substitute for balsa wood. In Ghana, it is currently recommended for use in insulation, and the sawdust is suitable for use in sun helmets. The wood is not

popular as a fuel as it burns very quickly. It is perhaps suitable for paper pulp. In Guinea the ash is used in indigo dyeing. The bark and leaves of the ndjanssang have a number of medicinal properties. The Temne of Sierra Leone tie warmed and beaten bark to the body to cure elephantiasis. In Liberia, pregnant women take a bark liquor (or leaves) to relieve pains and to prevent miscarriage. A bark decoction is taken in Gabon for blennorrhoea and painful menstruation and as a poison antidote. In West Africa, bark is used to treat diarrhoea, dysentery, leprosy and anaemia. In Nigeria, the ground up root is mixed with pepper and salt bark for treatment of constipation. In Gabon, people of the interior relish a small, white mushroom, dibindi, which grows on the dead trunks.

## Further Reading

Burkhill, H.M. (1985) The Useful Plants of West Tropical Africa. Ed 2. Vol. II. Families E-I, RBGKew, UK.

Ngo Mpeck, M.L., Asaah, E., Tchoundjeu, Z. & Atangana, A.R. (2003) Strategies for the Domestication of *R. bendelotii*: Evaluation of Variability in Natural Populations from Cameroon. Food, Agriculture and Environment, 1(3&4): 257-262.

Tchoundjeu, Z. (in preparation) *Ricinodendron bendelotii*. ICUC, UK. World Agroforestry Centre (undated) Agroforestry Database.

<http://www.worldagroforestrycentre.org/Sites/TreeDBS/AFT/AFT.htm>