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Azadirachta indica

[Synonyms : *Antelaea azadirachta*, *Antelaea indica*, *Antelaea javanica*, *Melia azadirachta*, *Melia indica*]

PRIDE OF CHINA is an evergreen tree. Probably native to Burma (often referred to today as Myanmar) and India it has edible perfumed (unpleasantly so after rain) small, lilac or white flowers.

It is also known as *Afoforo oyimbo* (Yoruba), Africa lilac, *Azadirachta*, *Azad Darakth e Hind* (Arabic), *Azad-darakhul-hind* (Arabic), *Azad dirakht* (Persian), *Azadirachta de l'Inde* (French), *Azedarach*, *Balnimb* (Hindi), *Bead tree*, *Bevinmar* (Kannada), *Bevu* (Kannada), *Bim* (Bengali), *Burmese neem tree*, *Cha-tang* (Thai), *China-berry*, *China-tree*, *Crackjack*, *Hagbush*, *Holy tree*, *Hoptree*, *Indian cedar*, *Indian lilac tree*, *Indischer Zedrach* (German), *Khwinin* (Thai), *Kohomba* (Singhalese), *Ku lian* (Chinese), *Lian shu* (Chinese), *Lian zao zi* (Chinese), *Lilas de Perse* (French, Réunion), *Lilas des Indes* (French), *Lilas du Japon* (French, Réunion), *Limba* (Marathi), *Limbro* (Gujarati), *Mambu* (Malay), *Margosa* (Portuguese), *Margosa tree*, *Margosier* (French), *Margosier de Birmanie* (French), *Margosier du Bangladesh* (French), *Mind* (Indonesian, Malay), *Mkilifi* (Swahili), *Mwarubaini kamili* (Swahili), *Neem* (Bengali, Hindi, Punjabi, Urdu), *Neem des Indes* (French), *Neem tree*, *Niembaum* (German), *Nim* (Arabic, Assamese, Bengali, Hindi, Nepalese, Oriya, Urdu), *Nimba* (Sanskrit), *Nimbac* (Sanskrit), *Nimbak* (Sanskrit), *Nimbaum* (German), *Nimbay* (Marathi), *Nim des Indes* (French), *Nimgach*, (Bengali), *Nimmi* (Sindhi), *Nimtree*, *Nind* (Hindi), *Paradise tree*, *Pride of India*, *Pride tree*, *Sadao* (Thai), *Sadao India* (Thai), *Sadu* (Malay), *Sàu-dàu* (Vietnamese), *Sherish* (Arabic), *Tamaka* (Burmese), *Timba* (Gujarati), *Vaepamaram* (Tamil), *Vempu* (Tamil, Telugu), *Vepa* (Malayalam, Tamil, Telugu), *Vepe* (Malayalam), *Veppu* (Malayalam), *White cedar*, and *Yepa* (Telugu); and in flower language is said to be a symbol of dissension.

An amber gum or sap can ooze from its branches during very hot weather.

Oil known as Margosa oil is extracted from the seeds.

The tree is pollinated by bats and its germination is apparently enhanced by passing through baboon guts.

Warning – there are unsubstantiated reports of the tree being poisonous (this may have arisen from confusion with Persian lilac, *Melia azedarach*).

Pride of China has a similar appearance to the very poisonous Persian lilac (*Melia azedarach*). *Indica* means ‘of India (or from the East Indies or from the Far East)’. The pride of China also gained the name *Bead tree* because its hard nuts have been used to make Buddhist rosaries.

For Hindus pride of China is sacred and plays a part in many religious ceremonies. For example the leaves are used during one festival to consecrate the water pot and its wood is fashioned into various deities (that are renewed about every 12 years) in accordance with complicated rituals. While the Hindu New Year (celebrated in March/April) provides an example of the flower’s use as, roasted, it is eaten with palm sugar or jaggery as a symbolic acceptance of good and evil.

In northern India the wood is used to make local percussion instruments.

Bark fibre has been employed locally for making rope.

In towns the tree itself is grown for shade (for people) and it is cultivated similarly in the countryside (for cattle). It is also planted as windbreaks.

The seed oil has not only provided a fuel (used in lamps) and lubricant for machinery but it is also employed in veterinary medicine for instance as a treatment for mange in dogs. The treated seed cake (after oil extraction) provides a fertilizer as does the foliage. In addition local farmers have used the seeds for generations as pesticide particularly in storage facilities. (They have also been used for a hair shampoo and have been placed amongst clothing as a moth deterrent.)

These last properties are not confined to the seeds and have led to uses in other areas besides farming. For example the leaves are sufficiently potent that they are used by herbaria and libraries to provide protection against damage from insects. The effect of pride of China (or neem) derivatives on various insects and other creatures has been studied with some fascinating results. Although disastrous for many including fruit flies, mosquitoes, cockroaches and snails they are not a threat for instance for bees and spiders that dine on other insects rather than plant tissues.

Some research (begun at least 50 years ago) is also being carried out into the role that the plant could play in the genetic control of some insects. It seems that extracts of it are capable of disturbing insect development and inhibiting egg laying. During the 1990s an international American chemical Company, W.R. Grace and Company based in Florida, found a way to extend the shelf-life of the seeds and established a factory near Bangalore in India to process them. Although on the one hand the latter has contributed to the local economy and provided about 60 jobs in the neighbourhood on the other hand the Company has been faced with accusations from many quarters of putting smaller farmers out of business through a dramatic increase in the cost of the seeds because so many are being deflected into the Company's factory instead of fulfilling the local need. (Some authorities have been unsympathetic and not only suggested that this price hike could have been co-incidental and that it would be nigh impossible to prove that the Company's activities were a significant factor in this rise.) At the same time the Company has also been in hot water as it has patented a pesticide based on these seeds and is being branded as a 'genetic colonialist' or 'pirate' by more than 200 institutions from 35 nations. In the 1990s this was being fought out in Western law courts and was destined to be an international legal landmark. There are those who believed that the specific patent(s) in question would ultimately stand and that this would have no impact on traditional use in India (and some other Asian countries where use of the tree has long been a way of life, shared by everyone in the local community).

Whatever the rights and the wrongs of this case however its outcome has had reverberating ramifications worldwide. It has provoked a major debate on a far larger issue that was hovering on the sidelines since the conclusion of some of the initial GATT talks and touched the agenda of the United Nations' Earth Summits from the 1990s – that is agreement on the fairest method of sharing the benefits of botanical resources. Those plants that are likely to cause the greatest ethical and practical concern in this context are most likely to be native to non-industrialised Western countries. While many of them may as yet have been unidentified in terms of Western botanical classification, a large number (which would include pride of China) will have long been familiar in their native habitat and local uses for them will have evolved over many, many hundreds of years. No patents are likely to have been considered for the latter, not least because the plants and their resources are accepted as part of the Country's culture, and the ease of their accessibility for exploitation on an international scale could be too great a temptation for the ever-hungry multi-national companies which have no allegiance to the locality in

question or its nation state. [Since writing the latter sweeping statement some slight amelioration might be appropriate in the light of recent international agreement in early 2000 that countries can refuse to import genetically modified plants and plant products if these are viewed as insufficiently scientifically tested as safe for the environment or for ingestion.] Apart from any moral considerations this fundamental issue could not only lead to the breakdown of the local economy (in parallel with those countries who have already experienced one-crop economy disasters when the world was less interdependent than today) but international relationships could be seriously undermined. The enormity of the problem could perhaps be said to equal that which is anticipated in some quarters over the future availability of adequate water supplies. (As an initial step towards resolving this genetic issue a few companies have already begun to sign agreements with some governments direct to share profits on products arising from the genetic use of local flora and fauna.)

Locally twigs have been used for hundreds and hundreds of years for cleaning teeth – and when this operation is complete the twig is often split and used as a tongue cleaner.

The tree is used today locally for fuel and fodder. The wood offers a mahogany (*Swietenia mahagoni*) substitute for making furniture and is also used in construction work. In Kenya at the beginning of the 21st Century it is also being chosen by local woodcarving co-operatives which produce carvings for the tourist industry. Pride of China oil is used by the toiletry industry in soap, toothpaste and hair lotions, as well as in disinfectants, cosmetics and insecticides.

Medicinally, the bark has been used to treat fever, and the leaves are employed both as an antiseptic and a tonic. Margosa oil is applied externally for treating skin diseases, leprosy, rheumatism, cramps and ulcers, and it is also taken by women during pregnancy. Pride of China features in local treatments (more often than not with other plants) for a wide range of problems, including measles, diabetes, worms and constipation.