(II)

## CHEURA [*DIPLOKNEMA BUTYRACEA* (ROXB.) H.J. LAM.]: AN IMPORTANT TREE FOR POVERTY ALLEVIATION

Forestry is the second largest land – use in India after agriculture and an estimated 275 million people in rural areas depend on forest for some part of their livelihood. Forest is under intense pressure, mainly from human activities, with the current consumption of timber and fuel wood well above sustainable harvest levels. There appears to be a great potential for increasing production to meet this supply gap, especially from forests managed by communities and farmer. Besides affording environmental protection and conservation, an almost equally important function of forest is the production of wood and a host of non timber forest products (NTFP). India is one of the largest edible oil seed producing country in the world and more than hundred species of trees and shrubs bearing seed possessing good oil content. The important oilseeds of forest origin include *Activodaphe kookeri, Azadirachta indica, Callophylum inophyllum, Garcinia indica, Jatropha curcus, Madhuca latifolia. Pongamia pinnata, Schleichera oleosa, Shorea robusta* and *Vateria indica.* Oils prepared from most of the seeds referred to above are used in various industries particularly soap industry. Cheura (*Diploknema butyracea*) is a member of the Sapotaceae family. It has come into large scale use in recent years in the rural areas of Pithoragarh (Uttarakhand), while efforts to exploit seed as a source of vegetable oil have started.

Cheura (*Diploknema butyracea*) is also a fast growing species. It is native to Nepal and is distributed from Nepal to Philippines. In India, it is distributed to Garhwal Himalayas to Sikkim and extends up to Bhutan (Sundriyal, 1999). In Uttarakhand, it occurs abundantly in Pithoragarh and adjoining areas of Almora, Bageshwar, Champawat and Nainital Districts (Negi *et al.,* 1988). It is also reported to occur in tropical moist forests of Andaman Island and Arunachal Pradesh. The trees are found growing in valleys and on the hill slopes at an altitude of 600 to 1850 m ( Nawa Bahar, 2009).

*D. butyracea* is multipurpose tree species with several uses as source of oil, fodder, fuel wood, timber and medicine. The tree gives medium quality timber, its green leaves make good fodder to the cattle, the flowers and fruits are consumed by men and animal alike. From the juice of Cheura flower, villagers prepare a jaggery which they call Cheura gur and relish the pulp of the fruits also. Besides yielding a good quality fat, every part of the tree is useful. The fat is known in the trade as phulwara butter and is commercially more valuable. Fat may be used in the manufacture of soap and candle and as lamp oil as it burn without emitting smoke or unpleasant odour. It is lighter in colour, harder in consistency and has a higher titer test. The cake is used as a substitute for soap and fish poison, as worm killer for lawns and golf greens, but after removal of toxins, it can be used as poultry and animal feed. The flowers are rich source of sugar and utilized for preparation of gur like products. It provides abundant nector of honeybees and is a major source of honey production. The oil-cake contains saponins and finds use as manure (Kureel *et al.,* 2008).

Edible oil of this species is used in chocolate, soap and candle manufacture. Seed oil is also used as medicine (ointment) for rheumatism, paralysis and aprains. Seed contains 42 – 48 per cent oil. Cheura ghee has been derived from the seed fat of the tree, which is a popular cooking medium in the locality. This fat id misused in the adulteration of pure Deshi ghee. Light brown seed coat which makes 24 per cent of the seed, yield 20 per cent of a flavonoid mixture, composed of mainly Dihydroquercetin with trace of quercetin. Dihydroquercetin is well known as an antioxidant in the confectionery industries (Banerji *et al.*, 1988). Cheura has a very important cultural value. Chepang community gives the seedlings as dowries to daughters indicating its significance in the livelihood of the community in Nepal (Singh and Khan, 2004).

*D. butyracea* provides abundant nectar to honeybees and is a major source of honey production. Nectar secretion per flower per day is recorded at 40.65 ± 8.13 mg. sugar concentration in this nectar is recorded up to 42 per cent (Bhattarai, 1999). Bee hives are also installed at flowering time to obtain good quality honey. The Cheura gur and honey are the famous products. These can increase the share in economy of the weaker section of the society in the hilly rural region. Nectar from the flowers is used in the preparation of sweet syrup, highly prized in Kumaun region of Uttarakhand. Seed of this species have the potential to improve the livelihoods of forest dwelling people, particularly tribal people, who are among the most disadvantaged group in Indian society. Its seeds also offer vast potential for poverty reduction and rural economic growth.

Considering the potential of *D. butyracea*, esp. ially in hilly rural areas, there is an immediate need to carry out their massive plantation in forest, farm and vacant community lands. It is also necessary to boost research and development activities for genetic improvement, development of efficient methods for mass production of superior quality planting stock and conservation of genetic resource.

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