

Diversity in germplasm of *Pongamia pinnata* (L.) pierre and its traditional uses in different climatic zones of Madhya Pradesh

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SUMMARY

Commercial utilization of tree born oilseeds as bio-fuel resources is becoming increasingly important for developing economics especially India. To assess the existing genetic diversity and to ensure its variability for the improvement of these rather unconventional crops for emerging future needs, their germplasm management is of high importance. An exploration was organized in different climatic zones of Madhya Pradesh in the district of Jabalpur, Bhopal, Narsinghpur, Sehore, Indore, Khandwa, Betul, Itarsi and Hoshangabad primarily to collect, conserve and evaluated the potential of *Pongamia pinnata* (L.) Pierre germplasm which resulted in acquiring 40 accessions. A data sheet specially developed for recording passport information has been enlisted. The frequencies for different descriptors and descriptor states, range of variability for pod and seed characters and promising accessions identified are high lighted. Traditional uses of *Pongamia pinnata* that are in vogue in the surveyed region are also presented in this paper.

Key words : *Pongamia pinnata*, Descriptors, Variability, Promising accessions.

Pongamia pinnata (L.) pierre belonging to family Leguminosae is distributed along coasts and river banks in India and Myanmar and is being projected as a biofuel crop. Native to the Asian sub continent, it has been introduced to humid tropical lowlands in the Philippines, Malaysia, Australia, the Sycheles, the United State and Indonesia. According to Lewis (1988), this species may eventually be transferred to genus *Millettia*. *Pongamia pinnata* in one of the few nitrogen fixing trees (NFTS) to produce seeds containing 30-40% oil. It is also salt tolerant and to some extent tolerant to slight frost. It is a good shade tree. The shade provided by this tree is said to have cooling effect and is good for wealth.

The oil is used as fuel for cooking and lamps, and has possibilities as biodiesel. The oil is also used as a lubricant, water-paint binder, pesticide, and soap making and tanning industries. The oil is known to leave value in folk medicine for the treatment of rheumatism, (Burkill, 1966). It is effective in enchancing the pigmentation of skin affected by leucoderma or scabies. *Pongamia* is commonly used as fuel wood. Its wood is beautiful grained and medium to coarse textured. However, it is not durable, is susceptible to insect attack, and tends to split when sawn. The wood is used for cabinet making, cart wheels, posts (NAS, 1980), agricultural implements, tool handles and combs (GOI, 1983). Its fodder value is greatest in arid regions. According to Singh (1982) the leaves contain 43% dry matter, 18% crude protein, 62% metural detergent fiber, 40% acid detergent fiber, and vitro dry matter degestibility of 50%. Keeping in view the

importance of augmenting the germplasm for evaluation and identification of elite genotypes from potential areas, an exploration trip was undertaken during May 2006 in the different climatic zones of Madhya Pradesh. The basic objectives was to study the diversity in the natural populations with respect to morphological characters, yield potential and oil content. This preliminary information would from the basis for further characterization, evaluation and identification of potential accessions for mass multiplication. It would also enable development of effective strategies both for long term conservation of the germplasm in the National Gene Bank (NGB) and maintance of the germplasm in field gene banks at Department of Forestry, Jawaharlal Nehru Krishi Vishwa Vidyalaya, Jabalpur (JNKVV).

MATERIALS AND METHODS

The study was conducted to access the magnitude of variability in *Pongamia pinnata* plus trees located in different parts of Madhya Pradesh. The experiment consists to survey, identification and collection of Karanja (*Pongamia pinnata*) germplasm. The survey was done in 9 districts of Madhya Pradesh state (Fig. 1) of India and 40 candidate plus trees (CPTS) have been identified based on the morphometric and qualitative traits from different locations of he state in month of May 2006. Care was taken to collect the dry pod directly from the marked trees. Sufficient pods were collected from each CPTS pod and seed characters viz. length (mm) breadth (mm), thickness (mm) and weight (g) were recorded on all the

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