DISTRIBUTION OF SOME IMPORTANT BIODIESEL PLANTS OF JAMMU DISTRICT (J&K, INDIA)

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Abstract: India which imports most of the fuel from other countries to meet its energy demands is in the need of some alternate source of fuel such as biodiesel. *Jatropha curcas*, *Pongamia pinnata*, *Ricinus communis* and *Argemone mexicana* are the important feed stocks of biodiesel. The present communication documents their distribution in Jammu district.

Keywords: Biodiesel plants, distribution, Jammu

INTRODUCTION

India that stands 6th in the world in energy demand (Kumar and Ram, 2005) and imports most of the fuel from other countries (Singh and Gu, 2010), is in the need of some alternative source of liquid fuel. Ethanol and biodiesel are considered as important energy efficient biofuels. Since feed stock of ethanol are important crop plants such as maize, sugarcane, corn and wheat, diverting the crops meant for food towards fuel production is debatable (Yadugiri, 2011).

In this pretext, biodiesel provides an important option. Though the presence of biodiesel has been reported by different workers in *Thalspi arvense*, *Cannabis sativa* (hemp), *Linum usitatissimum* (flax), *Helianthus annuus* (sunflower), *Zea mays* (corn), *Brassica napus* (rapeseed), *Brassica campestris* (conola), *Madhuca longifolia* (mahua), *Glycine max* (soybean), *Cocos nucifera*, *Coffea arabica*, *Allium cepa* and *Hippophae* species (Pryde, 1983, Mitteelbach *et al*., 1983; Bargale *et al*., 1999; Ma and Hanna, 1999; Srivastava and Prasad, 2000; Meher *et al*., 2006; Varun Shankar *et al*., 2010; Yadugiri, 2011, Barua, 2011 and Vazirzadeh *et al*., 2012), taxa widely preferred as important feed stocks of biodiesel are *Jatropha curcas*, *Pongamia pinnata*, *Ricinus communis*, *Argemone mexicana*.. Greater acceptance of these plants in general is owing to their multipurpose utility, having ability to grow on waste and abandoned lands with limited water supply and tendency to set more seeds with high oil content. Of the enlisted members, *Jatropha curcas* is considered as the best source of biodiesel followed by *Pongamia pinnata*, *Ricinus* and *Argemone* species (Yadugiri, 2011, Barua, 2011). Before achieving the ultimate goal of using plants for biodiesel production, it is important to identify the germplasm available. Biodiesel plants have been reported to grow in abundance in Uttar Pradesh, Andra Pradesh, Madhya Pradesh and Chhattisgarh (Yadugiri, 2011). Though these plants are also known to exist in Jammu district, the exact locations from where these could be collected are not reported (Sharma and Kachroo, 1981; Vidhyarthi, 1997). Present communication describes the areas of occurrence of these plants in Jammu district.

Jatropha curcas, a member of Euphorbiaceae is a semi-evergreen, monoecious small tree with five lobed green leaves and red flowers (Fig. 1a); seeds of this species are the source of biodiesel. Stands of this species have been located in forest areas of Mahamaya hills, Jammu University campus and Old University campus.

Pongamia pinnata (Indian Beech tree), an important tree species belonging to family Fabaceae have soft imparipinnate leaves (Fig. 1b); flowers are white colored and are borne in clusters. It is mainly distributed in Manda region and its adjoining areas, Mahamaya hills, Talab Tillo area, Jammu University Campus, botanical garden and JKBOSE (Jammu Kashmir Board of School Education) office at Rehari Colony, Jammu.

Ricinus communis, another member of Euphorbiaceae is a fast growing; perennial evergreen shrub having glossy alternate leaves (Fig. 1c). Yellow coloured flowers are borne in terminal panicle like inflorescence. It is found nearly everywhere in waste lands, agricultural fields and gardens in RS Pura fields, Akhnoor, Rehari colony, Bakshi Nagar, Paloura, IIIM (Indian Institute of Integrative Medicine), Jammu University campus and its botanical garden, Old University campus and Simbal Camp (Talab Tillo).

Argemone mexicana, a member of Papaveraceae, is an extremely hard prickly plant having yellow flowers. Both male and female flowers are produced in the same inflorescence. In Jammu plants of this species has been found near agricultural fields, gardens, roadsides, areas adjoining Tawi, Bahu Fort,

Gujjar Nagar, RS Pura, Bishnah, JKBOSE office (Rehari) and Jammu University campus and botanical garden.

More explorations in different areas of Jammu province are likely to bring to light more germplasm.

Fig. (a) *Jatropa curcas*, (b) *Pongamia pinnata* (c) *Ricinus communis*.

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