International Journal of Plant Sciences, **Vol. 3 No. 2 : 646-649 (July, 2008)**

A Case Study:

Studies on taxonomical variation of useful germplasm of poplar with reference to important clones

ALPANA* AND SAS BISWAS
Systematic Botany Discipline, Botany Division, Forest Research Institute, DEHRADUN (UTTARAKHAND) INDIA

(Accepted : March, 2008)

Key words : Taxonomical variation, Germplasm, Popular, Clones.

Tree is man's friend in survival giving him food, timber, fuel, shelter and medicine from the days beyond the dawn of civilization. To produce timber as much as possible and to grow it quickly is an urgent necessity today in many countries. Poplar can make an important contribution to such need. It possesses high timber and fiber value for industrial application as seasoning woodwork and packing cases.

Now days Poplar are not new to farmers, research institutes, universities, state forest, departments and private companies. *Populus* Linn. (vern. Poplar, Aspen and Cottonwood) mostly *P. deltoides* clones were introduced to India in 1952 to increase the availability of wood for the matchsticks and plywood industries. Clones introduced from the UK and Europe did not perform well while those from the USA and Australia grew well. Experiments on the introduction of exotic poplars into India been conducted by the Forest Research Institute, DehraDun, since 1958 when a number of clones from the UK were introduced and multiplied. In the moist localities of Almora and Chakratra hills in Uttaranchal, the clones of *P. yunnanensis* Dode and *P. robusta* Schneid. have shown some promise and in the plains of northern Terai, *P. deltoides* Marsh and some clones of *P. casale* have given good results.

By 1970, Poplars started being planted under irrigated condition and grew faster than any other indigenous or exotic species. *Populus* is widely planted above 28N latitude in India in Jammu and Kashmir, Punjab, Haryana, Uttaranchal, Uttar Pradesh, North Bengal, Arunachal Pradesh along roads, canals, in agriculture field, town, parks, and orchards. The wood of poplar is soft, light in weight and because of its rather wooly texture. It has no order and so it is suitable for food containers. There are some products for which poplar is outstandingly useful, and many others for which it is equal to other timbers. The biggest markets in this country are for matchboxes and cheap baskets for soft fruits.

Among the exotic species of poplar introduced in India to meet the growing demands of the various wood based industries, there are 360 clones namely representing *P.deltoides,,P.nigra,P.x.euramericana etc.*The clones of *P. deltoides* such as Uadi, Kranti, Bahar, G-3, G-48, D-121, WSL-12, S7C20, S7C15 and S7C21 are very commonly planted by farmers on their land as agro forestry tree in northern India. The taxonomic characterization of the mentioned clones has not yet been worked out.

Keeping in view of the economic importance a large number of poplar clones (*P. deltoides*) have been and are being developed, introduced, transplanted and distributed in different countries within and outside by research institutes, universities and distributed in state forest departments and private companies. As clonal material is bound to mix up while exchanging the stock by the planters and more strikingly by the non-technical hands, there is a loss of identity and subsequently resulting in to poor yield of wood for any specific purpose. Therefore, to solve this problem studies were carried out based on morphological and phenological characters such as habit, form, shape, surface, color of stem, color of bark, leaf (measurement) phyllotaxy,leaf, leaf stalk, petiole, number and shape of glands, leaf base and kind of leaf, leaf texture and winter buds (position, shape, size, color, occurrence, exudation and orientation of various morphological features of taxonomic significance. The taxonomic characterization based on the characters mentioned here provides authenticity of the material to be used for variety of purposes.

Significance of work on poplar clones focuses on following main aspects.

- Understanding the intra and infra-specific morphological, phenological and phyto-geographical diversity of various species/Clones for judicious utilization and proper propagation.
- Preparation of taxonomic treatise for ready reference on the morphological characters and clones of poplars growing in India.

Taxonomic characters of P. deltoides March

* Author for correspondence.