

## Systematic studies on successful clones of *Popular deltoides* Marsh growing in India through winter buds

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### SUMMARY

The present research paper deals with the morphological descriptions on successful clones of *P. deltoides* Marsh in India with particular emphasis on vegetative winter bud. Cultivation and plantation of clones of poplar is attractive because it can produce wood on a short rotation. Some time the losses are heavy when the estimated yield is not obtained, just for want of authentic parameters of morphological features. At the time of the introduction, distribution and cultivation of the clonal material, the basic identity of the propagation and harvested germplasm, become dubious as a result of mixing up subconsciously. Therefore, the systematic studies were carried out and the artificial key has been developed on the taxonomical features of useful clones of WSL series of *P. deltoides* i.e WSL-22, WSL-16, WSL-30, WSL-57, WSL-67, WSL-59, WSL-27, WSL-76, WSL-31 and WSL-50.

**Key words :** Morphological descriptions, *Popular deltoides*.

Poplar trees are one of the most striking features of the land surface and play a number of roles for benefit of human beings. Poplars are also increasingly recognized as excellent model trees for the study of tree growth and their underlying taxonomy, Physiology and genetics. The scientific name of poplar is *Populus* Linn. is a genus of deciduous fast growing trees under the family Salicaceae. India is one of the few countries where all five sections of the genus occur indigenously, mainly above 28°N latitude. According to Eckenwalder, the genus *Populus* is accommodated in six taxonomic sections- Aigeirios, Tacamahaca, Abaso, Turanga, Leucoides and *Populus*. The six indigenous species *Populus* namely *P. ciliata*, *P. laurifolia*, *P. gamblei*, *P. euphratica*, *P. alba*, and *P. jaquemontiana* var *glauca* are usually found along water courses in hills and valleys in the Himalayas.

Poplar by virtue of their fast growth offer a great potential for meeting the growing demands of wood-based industries and farmers. As the poplars remain leafless during winter they are suitable under different agro-forestry practices. Poplar cultivation is attractive because it can produce wood on a short rotation. Farmers grow poplar as intermix agricultural crops without any appreciable reduction in yield. It has a multiple use as a source of matchsticks, fuel, fiber, timber and animal feed and the ease with which they can be propagated vegetatively, have been closely associated with agriculture for a long time.

### MATERIALS AND METHODS

With a view to identify different clonal material of

WSL series of *P. deltoides* Marsh which have lost their taxonomic identity due to mixing up of the germplasm by the non technical hands at the time of the plantation, cultivation and distribution of poplars. The taxonomic studies were based on characteristics vegetative features of winter buds such as shape, size, color, exudation and orientation. Studies were carried out on poplars growing in different areas of Northern India under plantation, cultivation, distribution and in arboretum, germplasm bank of clones of Forest Research Institute, DehraDun and Rudrapur(UP) during the winters of 1996-1998. Significant findings of the investigation on the clonal studies are –

1. Contribution on the taxonomic status of ten exotic clones of *P. deltoides* occurring and introduced in India for the authentic identification of materials has been made.
2. Artificial key for identification of taxa based on morphological characters of useful clones has been developed.

The artificial keys based on taxonomic studies are at present one of the tools to identify the different clones of poplars.

### *Artificial key to the identification of Populus (1Year winter bud):*

1. Winter bud orientation long, terminal (1.0-1.5 cm)
  - (i) Shape broadly ovate
    - (a) Deeply brown, Apex acute, Bud short (0.5-1.0 cm), Position appressed, Leafscar shortly 3-lobed.....WSL- 27.
    - (b) Reddish brown, Apex acuminate, Bud large,

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