Indian Journal of Tropical Biodiversity

ARTIFICIAL REGENERATION OF SAL *(SHOREA ROBUSTA GAERTN.F)* BY ROOT CUTTINGS

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ABSTRACT: Sal (*Shorea robusta* Gaertn.F) is a member of family Dipterocarpaceae. The root cuttings of Sal have an ability to sprout to an extent of 98.46 percent with a survival success to the tune of 97.69 percent. The growth associates adjudicated a root shoot length ratio of 0.8000 cm and root shoot weight ratio of 1.6765 g without any coiling of the roots at the base after 81 days of planting the root cuttings. The predictor variable length of shoots presented significant positive correlation with the criterion variables number of leaves, thicknesses of root cuttings and significant negative association with the breadth of leaves. The root shoot length ratio being predictor variable deduced significant correlation with the number of leaves per sprouting, thicknesses of root cuttings and weight of shoots in root cutting. The number of leaves per sprouting depicted positive association with the thicknesses of root cutting. The length of longest leaf in root cuttings enumerated significant positive relation with the breadth of leaves and significant negative association in the root shoot weight ratio. Likewise, the predictor variable breadth of leaf adjudged negative relation with the leaf length breadth ratio. In similar fashion, the leaf length breadth ratio affirmed significant positive association with the mean weight of a leaf. The weight of root conferred a positive and significant influence on increase in root shoot weight ratio. Correspondingly, the root shoot weight ratio expressed significant variation with the variation in the mean weight of the leaves with the positive magnitude between the associates. The mean weight of a leaf in root cuttings of S. robusta enunciated a negative influence on number of sprouting. The multilinear regression between lengths of root, length of shoots keeping response variable as root-shoot length ratio surmised significant Fisher's ratio. The different multilinear regression between the predictor variables and a response variable elucidated variable magnitude of significant regression function. The Analysis of Covariance between the associated co variables after 81 days of growth of the root cutting adduced significant Fisher's ratio.

Key Words: *Artificial regeneration, Shorea robusta Gaertn.F, roots cutting, multilinear regression, growth*

Citation: Pooja Yadav and Yadav GS, (2018) Artificial Regeneration of Sal (*Shorea robusta* Gaertn.F) by root cuttings. Indian J Trop Biodiv 26(2): 92-108

Received on : 28 Jun. 2018
Accepted on : 20 Aug. 2018
Published on : 31 Dec. 2018

Sal (*Shorea robusta Gaertn. F)* is the most important timber species and has high production potential in forest of Madhya Pradesh and Chhattisgarh (Chaubey and Sharma, 2013). It is a member of family Dipterocarpaceae of order Malvales. Shorea is named after Sir John Shore, the Governor General of the British East India Company during 1793-1798. Robusta in Latin means robust, strong, and hard. This tree is also known as Shala, Sarai, Sargi, Salwa, Sakhua, Sakher, Shal, Kandar and Sakwa. It is also a state tree for Madhya Pradesh, Chhattisgarh and Jharkhand. Sal is a large sub deciduous tree. It attains a height of 35 to 40 meter at maturity. This tree seldom becomes completely leafless and under Bastar conditions of Chhattisgarh the plant associates with 95% new leaves in first week of March and on 1st March at Jagdalpur. The forest of a country are natural asset of immense value, which unlike mineral resources, can be kept potentially productive and useful under proper management with the supply of pole wood, fuel, fodder and food leaves to Vanya silk insect etc., which are indispensable needs of the people residing in or near them and also yield a variety of produce for commercial value, such as structural timber, raw materials for making news print, paper, plywood, tan stuff, lac, resin, leaves, essential oils, medicinal herbs etc., being the productive function of forests (Sangreiya, 1967). *Shorea robusta* has been traditionally used for various ailments. The leaves and bark are used to treat wounds, ulcers, leprosy, cough, gonorrhea, earache and headache. The bark is also used to treat diarrhoea, dysentery and vaginal discharges. The fruits are useful in tubercular ulcers, seminal weakness, burning sensation and dermopathy. The oleoresin exuded from the plant has astringent,