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Dynamics of dry matter production in *Tectona grandis* Linn.

Mukta Shrivastava

Department of Botany, Govt. M.L.B. Girls P.G.
Autonomous College, Bhopal-462 002 (India)
mukta.shrivastava 07@ gmail. com

ABSTRACT

Seedling phase determines the future of the Species after the germination of seed. Its growth, tolerance and establishment is largely governed by environmental factors in which it is developing. Result of the present study on seedling growth of *T. grandis* indicate that seedling growth and establishment exhibit greater contribution of biomass in roots.

Key words: Seedling establishment, environmental factors, biomass.

Establishment of Seedling is governed by genetical and climatic conditions. Studies of seedling survival and mortality under natural forest conditions are scarce. Die back phenomenon has been observed in trees from different geographical areas[10], Goodman[4]; Champion and Seth[3], Prasad[7]. Prasad[7] observed dying back in forest of Sagar. Most of the available data are from temperate forest ecosystems. Data for tropical forest tree seedlings are comparatively scanty. These studies include those of Bhatnagar[2], Agrawal[1], Sharma and Singh[8], Lalman and Misra[5] and Singh *et. al*[9].

Tectona grandis Linn. forest tree species was selected for the present study. Seeds were sown in Polythene bags. After 30 days, these seedlings were transplanted into open plots. For standing crop biomass the harvest technique of Odum[6] was followed. Seedling fractional (root and shoot) wet and dry weights were estimated.

The seedlings were observed carefully throughout the year for germination. The entire period of study was divided into three seasons viz., rainy, winter and summer. Field observations also indicate that seedlings of *T. grandis* are light demander.

Primary data for growth analysis of seedling in different months is given in fig 1. Performance indices for shoot and root fractions are tabulated in terms of percent contribution and are given in Table-1.

It is evident from data of growth that seedlings of *T. grandis* showed that shoot

Table-1. Percentage importance of shoot and root and relative growth rate (gg^{-1} $month^{-1}$) during different months in seedlings of *T. grandis*

Age (month)	Shoot	Root	R.G.R.
July	60	40	
			0.0320
August	55.31	44.68	
			0.0492
September	58.10	41.89	
			0.0560
October	44.85	55.14	
			0.0203
November	45.73	54.26	
			0.0226
December	50.99	48.01	
			-0.0125
January	31.66	68.33	
			0.1752
February	27.15	72.84	
			0.0109
March	26.34	73.65	
			0.0145
April	46.04	53.92	
			0.0123
May	52.80	48.59	
			0.0133
June	43.38	56.61	

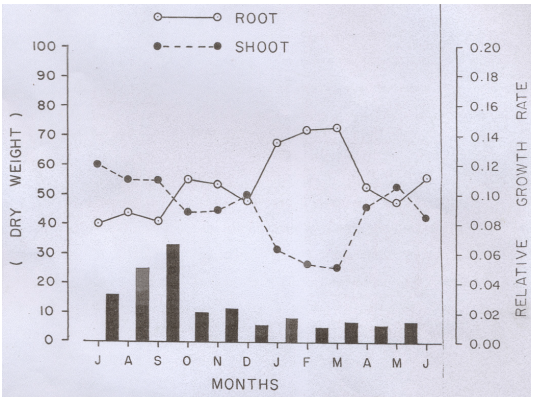

Fig. 1. Percent importance of root and shoot with relative growth rates (gg^{-1} $week^{-1}$) in seedlings of *T. grandis*

contributed more biomass than the root.

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