



## EFFECT OF LENGTH AND DIAMETER OF SHOOT CUTTINGS ON VEGETATIVE PROPAGATION OF *ZANTHOXYLUM ALATUM*

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**ABSTRACT:** *Zanthoxylum alatum* (commonly known as Timur, Timru, Tomar) is an important medicinal plant found in the warmer valleys of the Himalayas, parts of north-east and eastern India. Seeds of Timur are important ingredients to Zuroor-e-Qula (powdered polyherbal Unani formulation) which contains antimicrobial and anti-inflammatory activity (Paridhavi and Agrawal, 2007). Having large number of medicinal properties, *Z. alatum* fruit and seed remain in high demand in the market. Seeds are, therefore, not easily available for propagation of this plant in many situations. Propagation through shoot cuttings is one of the most common methods of vegetative propagation in many woody species. Few studies are reported in the literature where propagation through shoot cuttings has been attempted in *Z. alatum*. Cutting diameter was found to have a significant effect ( $p \leq 0.05$ ) on all parameters except root length. The lowest number of cuttings per plant (15.8) and plants produced per plant (8.25) and the highest values of sprouting (86.66%), shoot length (6.53 cm), shoot diameter (2.60 mm), rooting (56.66%), survival (52.22%) of cuttings were recorded in D3 (18-21 mm). The maximum number of shoots per cutting and number of roots per cutting were also recorded in D3 (18-21 mm) followed by D2 (15-18 mm).

**Keywords:** Growth hormones, rooting, sprouting, stem cuttings, *Z. alatum*

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### INTRODUCTION

*Zanthoxylum* is an important medicinal plant which is known as Indian prickly ash or toothache tree. The local name of this plant Timru, it is widely distributed in north east India. It is an evergreen, thorny shrub or small tree; attaining a height up to 6m. Leaves are 4-20cm long, imparipinnate, pungent, and aromatic with glabrous, narrowly winged petiole having two stipular prickles at the base (Kala *et al.*, 2005). The bark, fruits, seeds, leaves and flowers are consumed and the extracts, paste are also used in different countries for different ailments. In India, the seeds and bark are used for treatment of fever, dyspepsia, cholera, repellent of house flies and snake bite, the fruit decoctions and berries are used for abdominal pain, carminative, antispasmodic, rheumatism, skin diseases, cholera, diabetes and asthma (Kala *et al.*, 2005). *Zanthoxylum* is traditionally recognized as having many uses, and

studies of extractives have identified numerous compounds with potential medical application such as cancer treatment, antioxidant, anticoagulant and antibacterial agents (Chen *et al.*, 1994; Sheen *et al.*, 1994; Xiong *et al.*, 1995; Islam and Ahsan, 1997 and Hisatomi *et al.*, 2000). *Z. armatum* has been shown to contain high amount of linalool (Jain *et al.*, 2001), a compound used commercially in soaps, detergents, insecticides, and as a precursor for the production of vitamin E, and therefore may have commercial potential beyond spice production. Leaves and fruits chewed for mouth wash and tooth care and flowers act as a good source for bee forage in apiary (Negi *et al.*, 2011). Paste prepared from fruit powder of *Z. alatum* is used gum and dental disorders, this paste is also used as dyspepsiac and lotion for scabies. In India, the leaf is used against fever, dyspepsia and bronchitis. In Manipur, India, the seed oil is applied against baldness and bark powder is used to treat toothache (Singh and