

Homobrassinolide and chemical composition of curcuma longa L. (turmeric) rhizome

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Abstract. The effect of homobrassinolide (HBL) on the nutrient value of *Curcuma longa* L. (turmeric) rhizome grown in Nizamabad, Telangana State, India was studied. Application of homobrassinolide (HBL) as foliar spray to turmeric plants on the 20th, 40th and 60th day from sowing resulted in enhanced chemical composition of turmeric rhizome. Application of homobrassinolide (HBL) resulted in enhanced total sugars, principal ingredient curcumin, total poly phenol content, total flavonoid content, total tannin content, crude fat, crude fibre and essential oils (turmerone, zingiberene, cineole and p-cymene) present in the turmeric rhizome indicating the ability of homobrassinolide (HBL) as a potential plant growth regulator (PGR).

Keywords: cineole; crude fat; crude fiber; curcumin; P-cymene; total flavonoids; total poly phenols; total sugars; total tannins; turmerone; zingiberene

1. Introduction

Plant Growth Regulators (PGRs) are compound errand messengers that are capable of controlling the development and improvement of plants, and subsequently are likewise often represented as plant development controllers. By intrinsic limit, plants alter the dimension of PGRs specifically or by implication to adapt up with unpleasant conditions to affect growth and development (Finkelstein *et al.* 2002). Among the recently included PGRs, BRs have been the subject of sharp enthusiasm for plant scientists for their role in growth and metabolism of plants under normal and stressful environment.

Brassinosteroids (BRs) are fundamental low molecular weight PGRs (plant growth regulators) that are omnipresent through the plant kingdom (Rao *et al.* 2002, Vardhini 2020). Mitchell *et al.* (1970) first reported their presence in plants in 'Nature' depicting the growth promoting activity of *Brassica napus* L. pollen extricates at very low amounts. The research studies (Bajguz and Hayat 2009, Vardhini *et al.* 2010) on BRs clearly depict their ability to mitigate various biotic (bacteria, virus, fungi, nematodes) and abiotic (temperature, salt, drought, metal, water) in plants. The research work on BRs clearly demonstrates the positive role of BRs as potential PGRs that are non- xenobiotic to human race with the capability of reducing the risk of pesticides to mankind as well as the other biotic beings living on the surface of the earth.

Turmeric (*Curcuma longa* L.) belongs to the ginger family known as Zingiberaceae. Turmeric

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