ABSTRACT OF THE THESIS ENTITLED “STUDIES ON TRIACONTANOL INDUCED GROWTH AND ASSESSMENT OF YIELD IN VIGNA RADIATA (L) WILCZEK VAR. SUBLOBATA (ROXB.) VERDC.”

Triacontanol is a fatty alcohol having general formula $C_{30}H_{62}OH$ and molecular weight 438.82. It is also known as melissyl alcohol or myricyl alcohol. It is found in plants in cuticular waxes and in bees’ waxes. It is a growth stimulant for several plants.

The triacontanol was first reported by Ries et al. (1977) which was a crystalline substance, isolated from the active fraction of alfalfa meal. It increased the dry weight and water uptake of rice seedlings when sprayed on the foliage of the plant. It is also known as TRIA. Different studies gave variable results with different factors such as environment, soil and location on which the plant is grown. The reports are also available that it helps for the photosynthesis and that is improved to 100%. Triacontanol powder is thick like wax therefore while using, it is dissolved into a liquid. It is insoluble in water at $20^\circ$C, slightly soluble in cold alcohol and benzene. It is soluble in ethyl alcohol, chloroform, hexane, methyl alcohol, methyl dichloride, hot benzene and THF (tetra hydro furan). It is stable in alkaline medium. It is non poisonous to human and animals. For large storage it can be kept for 3 years under cool, shade and dry conditions. It is known for improving the activity of enzymes, increasing content of chlorophyll, promoting photosynthesis, promoting dry substrate accumulation, promoting element absorption by the plants, increasing the protein content and sugar, promoting water absorption and decreasing water loss, promoting seed germination, increasing budding rate, promoting root and leaf formation, promoting division of bud and flower, increasing tiller quality, promoting early maturity, protecting blossoms and fruits,
increasing fruit forming rate and increasing resistance ability to drought. For application the care should be taken that it is applied in diluted form only.

The green gram (popularly known as mung bean) is botanically known as *Vigna radiata* (L.) Wilczek var. sublobata belongs to the legume family, Fabaceae. The whole mung bean is used in several dishes of India and China and the countries of the East. Mung bean sprouts are regularly consumed in the breakfast in India. Mung bean starch is utilized for the preparation of cellophane noodles.

In India it is one of the most widely cultivated pulse crops. It is grown over an area of 30084-hectors with production of 10232 tons in 2000-2001 (Post harvest profile of green gram, monishing of food and agriculture, Govt. of India). Mungbean [*Vigna radiata* (L.) *radiata* (L.) var. sublobata Wilczek] is one of the thirteen food legumes grown in India and ranks third in production after chickpea and pigeon pea. In India it is cultivated with a production of 1.42 million tonnes from an area of 2.92 million hectors with average productivity of 486 kg/ ha (Dixit, 2005). The major mungbean producing states in India are Andhra Pradesh, Orissa, Maharashtra, Madhya Pradesh and Rajasthan accounting for 70 per cent of total country's production.

The effect of triacontanol is variable for every plant. The enhancing effect was observed on tomato (Khan *et al.*, 2006) and opium poppy (Shrivastava and Sharma, 1990). However, the germination was not significantly affected in any of the 15 species tested by Hoagland (1980). Axis length was inhibited in three species: lettuce (*Lactuca saliva* L.), sicklepod (*Cassia obtusifolia* L.), and cotton (*Gossypium hirsutum* L.). There was no stimulation or inhibition of growth in corn (*Zea mays* L.), sesbania [*Sesbania exaltata* (Raf.) Cory], sorghum [*Sorghlum bicolor* (L) Moench], spurred anoda [*Anoda cristata* (L.)]