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Effect of GA_3 and IBA on Seedling Germination of Jackfruit

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Artocarpus heterophyllus (J-31) also known as the **jack tree**. Originally it is native to India. Major jackfruit production states in India are TamilNadu, Kerela, Bihar, Orissa. The plant genus *Artocarpus* comprises roughly 50 species of tropical trees. It belongs to family Moraceae .The origin of jackfruit is India. It has been listed by the Food and Agriculture Organization (FAO) as a "neglected" plant that can potentially reduce overreliance on a few fruit crops and promote biodiversity. It can be propagated through seeds and grafting method. The trees can be maintained at a height and spread of 2 to 2.5 m Trees of this size can produce 42 to 60 kg (92 to 132 lb) per year. The fruits are large and irregular in shape with prominent, blunt spines. The weight is 12 kg with an edible flesh percentage of 36%. The flesh is deep yellow and firm with thick walls. The flavour is sweet and rich with strong, earthy aroma.

The jackfruit tree is well-suited to tropical lowlands and is widely cultivated throughout tropical regions of the world, including India, Bangladesh, Sri Lanka, and the rainforests of the Philippines, Indonesia, Malaysia, and Australia. It bears the largest fruit of all trees, reaching as much as 55 kg (120 pounds) in weight, 90 cm (35 inches) in length, and 50 cm (20 inches) in diameter. A mature jackfruit tree produces some 200 fruits per year, with older trees bearing up to 500 fruits in a year. The jackfruit is a multiple fruit composed of hundreds to thousands of individual flowers, and the fleshy petals of the unripe fruit are eaten. The ripe fruit is sweet (depending on variety) and is commonly used in desserts. Canned green jackfruit has a mild taste and meat-like texture that lends itself to being called "vegetable meat".

Jackfruit best suited to grow in arid and warm humid plains of south India. It thrives well in humid hilly slopes at an elevation of 1400 to 1500 m. Frost and cold weather damage the tree and fruit growth and areas having these conditions are not suitable for jackfruit farming. Jackfruit requires fertile and well drained sandy loam soil with pH of 6.0 to 7.5.

Effect of GA_3: Gibberellic acid (GA3) is a plant growth regulator that is sometimes used to promote the growth and development of various fruit trees, including jackfruit. Its effects on jackfruit trees can include: **Fruit Development:** GA3 can stimulate fruit development and increase the size of jackfruits. It may be used to promote uniform fruit sizing. **Flowering:** GA3 can induce flowering in jackfruit trees, which can be helpful for increasing fruit production. This is especially useful in regions with irregular flowering patterns. **Seedlessness:** In some cases, GA3 can help reduce the number of seeds in jackfruits, making the fruit more desirable for consumption. **Fruit Setting:** It can assist in improving fruit setting, ensuring that a higher percentage of flowers mature into fruit. **Fruit Quality:** GA3 may enhance the quality of the fruit, resulting in better taste, texture, and appearance. It's

important to note that the effectiveness of GA3 can vary depending on factors such as the specific jackfruit variety, environmental conditions, and the concentration and timing of GA3 application. It's crucial to follow recommended guidelines for its application and consult with local agricultural experts for the best practices in your specific region. Additionally, consider potential regulatory and safety requirements for the use of plant growth regulators in agriculture.

Effect of IBA on Jackfruit: Effect of IBA on root formation in plant cuttings. When applied to jackfruit (*Artocarpus heterophyllus*) cuttings, IBA can have several positive effects: Root Development: IBA promotes the development of roots on jackfruit cuttings, which is crucial for successful propagation. Improved Survival Rate: The use of IBA increases the chances of cuttings surviving and thriving, as it enhances their ability to establish a root system. Faster Growth: With a well-developed root system, jackfruit cuttings are more likely to grow into healthy, robust plants. Cloning and Propagation: IBA is useful for vegetative propagation, allowing growers to clone desirable jackfruit varieties. Stress Reduction: IBA can help reduce transplant shock, making it easier to establish jackfruit seedlings in the field. However, it's important to use IBA in the correct concentration, as excessive use can have adverse effects. Further research and experimentation should be conducted to determine the optimal dosage and application methods for specific jackfruit varieties and growing conditions.

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