ARTIFICIAL FLOWER INDUCTION IN PINEAPPLE—A REVIEW

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It has been found that the nature and time of flowering in pineapple can be improved by treating the plants with hormones. The most obvious effect has been found to be enhanced flowering both in terms of time and quantity. The response of the plants to hormone treatment varied according to the substances used and their concentration. Other effects of hormone treatment have been found to be increase in size and weight of the fruit.

দেখা গিয়াছে যে আনারস গাছে হরমোন প্রয়োগে পুষ্পায়নের সময় ও প্রকৃতির উন্নয়ন সাধন সম্ভব। প্রকৃষ্ট ফলাফল হিসাবে দ্রুততর ও অধিকতর পুষ্পায়ন সংঘটন সম্ভব হইয়াছে। হরমোনের প্রকার ও দ্রবনের ঘনত্বের উপর আনারস গাছের প্রতিক্রিয়া বহুলাংশে নির্ভরশীল। হরমোন প্রয়োগের ফলে অন্যান্য গুণাগুণের মধ্যে ফলের আকার ও ওজন বৃদ্ধি অন্যতম।

INTRODUCTION

Under natural conditions, a percentage of pineapple plants do not flower at the normal time and, in addition, flowering may spread over several weeks. But with the application of hormone the plants can be forced to flower within a shorter period ensuring uniform cropping. This is very important when the fruit is grown for canneries. Moreover, fruits can be obtained all the year round by artificial flower induction and advantage taken of the higher prices for "offseason" fruits Tremendous works have been done in this line in different countries specially in Australia, Hawaii and Puerto Rico and some in Bangladesh and a few important of them have been reviewed in this paper

Rodriguez (1932) demenstrated that ethylene could induce pineapple plants to flower, Subsequently it was found that acetylene could also 'force' differentiation of flower buds in the pineapple plant (Wendt 1933). Clark and Kerns (1942) and Cooper (1942) reported that treatment with alphanaphthalene acetic acid, naphthaleneacetamide and naphthalenethioacetamide also caused early flowering in pineapple. Cooper (1942) observed maximum response in October but not in July under Florida conditions, while Clark nnd Kerns (1942) found the highest response in August but not in November. Van Overbeek (1946) showed that the amount of ANA and 2, 4-D required for the initiation of flower ranged from 0 25 to 0.5 mg per plant. He is also of the opinion that it is the amount of growth substance per plant which really matters in order to bring the pineapple plants to flowering Induction of early flowering increased yield, large sized fruits and synchronization of flowering are some of the special features of artificial flower induction with plant hormones (Van Oberbeek 1946 ; Das 1960). For flower induction, Groszmann (1950) suggested 5 ppm ANA solution for spring and early summer and double this strength for autumn when the heart of the plant is often filled with water. He obtained 7-12 percent increase in fruit weight by ANA application. Mitchel and Cannon (1953) recommended that 2 fluid ounces of 10 ppm ANA solution should be used in Queensland Gowing (1956) observed that very high doses of IAA 1,000-2,000 mg per litre were necessary to cause flowering in this plant as against 5-20 mg per litre of ANA 2,4-D. Cannon (1960) found fruit maturity to be delayed upto 10 days by treating the fruits with ANA at 100 ppm 8 weeks in advance of normal maturity, The fruit weight was increased by 12-20 percent because of ANA treatment, Das (1964) recorded 100 percent flowering of pineapple against 72.22 percent of the control and increased fruit weight and fruit dimension by ANA application. Das, Baruah and Baruah (1965) treated plants of varying age with acetylene saturated water (at 50 ml per plant) and with solid carbide (at 1 and 2 g per plant). Flowering occured 40 days after treatment, Carbide treatment resulted in 65.6 percent flowering and acetylene in 76 4 percent compared with no flowering with control plants, From a trial with ANA and calcium carbide Seeyave (1966) concluded that the plants should be at least one year old and vigorously growing before treatment. He further reported that 15-30 ppm of ANA at the rate of 50 ml per plant induced uniform flowering and fruiting at predetermined date,

Cibes and Gandia (1962) obtained uniform and greatly advanced flowering of Red Spanish pineapple by the application of 50 cc of 0,06 or 0,12 percent beta hydroxyethyl hydrazine (BOH), Flowering took place 48 days after treatment, Berill (1966) reported the superiority of BOH for induction of flowering in pineapple in January-March period when ANA was less reliable, He recorded 100 percent flowering with 2,500 ppm solution of BOH at the rate of 1 fluid ounce per plant compared with 0-65 percent when ANA was used at 10 ppm, Gowing and Leeper (1967) recorded induction of early flowering in two tests

at different seasons in pineapple by applying BOH,

Ali and Talukdar (1965) observed significant rise in the number of flowers of the auxin treated plants over the control. Monowar, Faruque and Siddique (1973) conducted an experiment on flower induction of pineapple by using IBA, ANA and 2, 4-D in the concentrations of 0, 5, 10, 25 and 50 ppm. ANA was found superior to IBA and 2, 4-D for flower induction. Only 5, 10 and 25 ppm of ANA and 10 ppm of 2, 4-D induced the maximum number (56.67 percent) of flowers. In a study at flowering season of pineapple Shahidullah and Hossain (1974) recorded 90 percent induction of flowering by the application of ANA against 53.33 percent in the control Both fruit weight and fruit dimension were increased and fruit ripening delayed due to ANA application. In another study during the off-season they observed 80 percent flowering within a range of 16 days from the date of first flowering and completed within a range of 55 days from the date of treatment with the application of ANA while none of the untreated plants flowered during the observation period.

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