(7)

Physiological processes.

The mechanism of Auxins action in bringing about the cell elongation has not yet clearified. But it is known that the basic action of auxin in initiating cell elongation requires the continued Synthesis of RNA (specially mRNA) and protein for several hours.

Czaja (1935) proposed that the growth is influenced by increasing osmotic pressure in the treated tissue. Thimann (1936) suggested that auxins act as protecting agent to enzyme from inactivation. Skoog (1942) advanced the idea that auxins act as in a manner of coenzyme in growth. Recent study of Nooden and Thimann (1963-65) Key (1964,67), Willkins (1969,79) suggested that this phytohormone directly act upon DNA template for mRNA. It results in Synthesis of specific protein that causes cell enlargement. fig:-

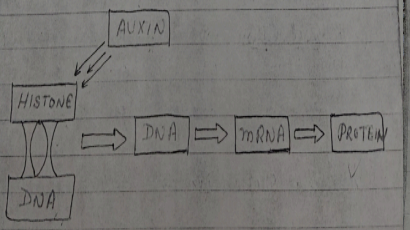

fig- Schematic representation of the release by auxin of DNA template for mRNA Synthesis (Dissociation of DNA histone complex induced by Auxin releases DNA for mRNA Synthesis. The new mRNA in turn mediates the Synthesis of new protein).

(6)

Translocation of Auxins ⇒ The auxins are widely distributed throughout the plant body but the greater amount is found in the tip of the coleoptile, in buds and in the growing tips of leaves and roots.

It has been demonstrated that auxins are transported in three directions:-

[A] Upward movement - It occurs through xylem.
[B] Downward movement - It occurs through phloem.
[C] Centripetal transport - It occurs from the centre towards the periphery through pith rays cell.

The velocity of Auxins transport has been measured 1-1.5 /hr in stem. Auxin transport depends upon aerobic metabolism.

Synthetic (Known Auxin) ⇒ Dolzt Haagen Smit (1931) isolate a growth promoting substance from human urine it was named as Auxins. Similarly these workers isolated another growth promoting substance from Corn oil. It was called as Hetero auxin. But the nature of this growth promoting substance is doubtfully.

Several Synthetic auxins are also known. They include Indol butyric acid (IBA) 2-4 dichlorophenoxy acid, 2-a napthalene acid, phenyl acetic acid.

Mode of Action ⇒ There are certain basic auxin induced physiological responses which elucidate the fact that auxin in active is extremely small concentrations, and possibly their constant presence is essential to express activity in regulating