

# 16. PLANT AND ANIMAL HORMONES

## Learning Objectives

At the end of this lesson the students will be able to:

- ❖ Define hormone.
- ❖ List out plant hormones.
- ❖ Classify plant hormones into growth promoters and growth inhibitors.
- ❖ Differentiate the physiological effects of various plant hormones.
- ❖ Understand how plant hormones control and coordinate various physiological activities in plants.
- ❖ Know the various endocrine glands in the human body.
- ❖ Identify the location and structure of the endocrine glands in the human body.
- ❖ Differentiate exocrine and endocrine glands.
- ❖ Know the specific site of action and their functions.
- ❖ Identify the disorders which occur due to decreased or increased hormone secretion

## Important Notes and Results

- Phenyl Acetic Acid (PAA) and Indole 3 Acetonitrile (IAN) are natural auxins. Indole 3 Butyric Acid (IBA), Indole-3- Propionic Acid,  $\alpha$ -Naphthalene Acetic Acid (NAA), 2, 4, 5-T (2,4,5 Trichlorophenoxy Acetic Acid) are some of the synthetic auxins.
- The branch of biology which deals with the study of the endocrine glands and its physiology is known as '**Endocrinology**'. **Thomas Addison** is known as Father of Endocrinology.

English physiologists **W. M. Bayliss** and **E. H. Starling** introduced the term *hormone* in 1909. They first discovered the hormone secretin.

- Melatonin is a hormone produced by the pineal gland. It is known as a 'time messenger'. It signals night time information throughout the body.
- Exposure to light at night, especially short-wavelength light, can decrease melatonin production interrupting sleep. Suppression of melatonin has been implicated in sleep disturbances and related metabolic disorders.
- Edward C. Kendal in 1914 first crystallised thyroxine hormone. Charles Harrington and George Barger identified the molecular structure of thyroxine in 1927. Thyroid gland requires "120 µg" of iodine everyday for the production of thyroxine.
- Human insulin was first discovered by Fredrick Banting, Charles Best and MacLeod in 1921. Insulin was first used in treatment of diabetes on 11th January 1922.
- The **cortisol** hormones of adrenal cortex serves to maintain the body in living condition and recover it from the severe effects of stress reactions. Thus an increased output of cortisol is "life saving" in "shock conditions". It is also known as life-saving hormone.