

4.1 The basic needs of plants and the causes of physiological stress

4.1.1 Light

Light is an electromagnetic wave. There are three main types:

- Ultraviolet light – short wave length, harmful to plants
- Visible light – medium wave length, comprising different colours. Visible light triggers photosynthesis in plants, photoperiodism (the response of plants to seasonal changes in day length) and phototropism (plants turning towards a light source)
- Infrared light – long wave length, thermal energy

When plants receive adequate light, it stimulates their growth, provides rigidity and woodiness, gives them a pleasant colour, speeds up the fruit and flower production process and creates aromatic substances. When plants do not receive adequate light, however, they tend to grow in length, become soft and pale coloured, lose their variegation, exhibit accelerated root and tuber growth, and produce either little or no aromatic substances. In terms of the requirement for light, the following distinctions can be made between plants:

- Full sun plants, which grow mainly in deserts, steppe and savannah and are able to withstand strong light
- Succulent plants and cactuses

Shade plants that grow in tropical forest undergrowth and cannot tolerate direct sunlight – they have different leaves and are coloured differently

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