

Chemical substances fungicides

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Fungicides are chemical substances that are widely used to compromise the growth of pathogenic fungi. It's applied on the surfaces of the plant and can work locally or systematically. Fungicides also exhibit different degree of action; some can be used to control a wide range of fungi hence referred to as wide spectrum or can only be used to control specific species of fungi termed as narrow spectrum fungicide.

Mode of action

The fact that fungicides can control a wide range of fungi elicit the question of how this happens, some of the advanced reasons as to how the fungicides work include the following; there are specific fungicides that impairs synthesis of the genetic material in fungi thus avoiding synthesis of major fungi constituents that are necessary for life, enzyme and other cell components are not produced and eventually the cells die . Another group of fungi are known hinder electron transport system which is essential for the physiological function of the fungi like the oxidative phosphorylation, an important process in respiration. Inhibition of protein synthesis is also a way in which fungicides arrest the fungal growth, this indicates that it stops the all important processes of transcription and translation hence death results. Membrane synthesis can also affected making the fungi cells vulnerable to the process of osmosis that is, the selective nature of the membrane ceases and the cells suffers lysis. Mitosis and cell division of the fungi can also be affected leading to no propagation of the pathogens, this leads to reduction of the fungi population, in this case the propagative spores are affected. Some fungicides have multisite effect; they affect almost all parts of the

fungi including the mycelium that are used by the fungi to absorb materials for their use, water being an example.

Concerns

Even though the use of fungicides has become popular in increasing crop production in terms of quantity and quality, it should be clearly noted that when consumed, they have a devastating effect on human; some chemicals used to make the fungicides are carcinogenic and can induce chaotic division of cells resulting into tumours. They are also toxic and can lead to chronic or acute poisoning depending on the lethal dose of the fungicides. Long time exposures to the chemicals have also been known to cause sterility.

Genetical composition of the cells can also be altered by fungicides leading to mutation.

References