Mode of Action

Video Dialogue - Part 2

Fungicides and Bactericides

26. Fungicides inhibit fungal growth by interfering with cellular development. Many work by damaging cell membranes, stopping or halting critical enzymes or proteins, or interrupting various metabolic processes such as respiration.

27. Inhibitors of an electron transport chain are pesticides that stop the transport of electrons with in a plant.

28. Inhibitors of enzymes break down and disrupt or inactivate the structure of proteins and enzymes leading to a loss of function.

29. Inhibitors of nucleic acid metabolism and protein synthesis stop cells from dividing at the nuclear level preventing RNA or DNA from constructing.

30. Inhibitors of sterol synthesis stop the process that produces ergosterol. This is similar to cholesterol in humans and most fungi need this or membrane structure and function.

31. There are many fungicides that are active on multi-sites. Cell development disruptors, membrane disruptors, respirator inhibitors and lipid (lip-id) synthesis have unknown modes of action.

32. Some of the most recognizable chemicals in these categories are sulfur, copper, mineral oils, chlorothanlonil, captan, carbamates, and polypetid.

33. Bactericides and antibiotics are widely found in all life forms and are needed to control harmful bacteria.

34. DNA and RNA are keys to the replication of all living forms, including bacteria. Inhibitors of DNA synthesis don't allow DNA to synthesize. These antibiotics work by binding to components involved in the process of DNA or RNA synthesis. This causes interference of the normal cellular processes and ultimately compromise bacterial multiplication and survival. Examples include quinolones, metronidazole, and rifampin.

35. Enzymes and cellular structures are primarily made of proteins. Protein synthesis is an essential process necessary for the multiplication and survival of all bacterial cells. Inhibitors of bacterial protein synthesis include several types of antibacterial agents. These target bacterial protein synthesis by binding to various ribosomes. This results in the disruption of bacteria's normal cellular metabolism and consequently leads to the death of the organism or the stopping of its growth.

36. While the cells of humans and animals do not have cell walls, this structure is critical for the life and survival of bacterial species. Inhibitors of bacterial wall synthesis are drugs that target cell walls selectively killing or inhibiting bacterial organisms. Examples include penicillin, cephalosporins, bacitracin and vancomycin.

37. Several Unknown Target Pesticides are known to affect less well described target sites of functions or to act nonspecifically on multiple targets.

38. Resistance is common amongst all pesticides. The best pesticide resistance strategy is to prevent resistance in the first place by monitoring the pests for changes in population densities, focusing on economic injury levels and integrating multiple control strategies.

39. Use pesticides only if the pests are numerous enough to cause economic losses or a threat to public health.

40. Incorporate as many different control strategies as possible. For example synthetic and biological insecticides, beneficial insects, transgenic plants, crop rotation, and pest resistant crops.

41. The best strategy is developing a comprehensive plan to manage the health of your host and assist with the battle against pests.