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Research Highlight

FUSILADE EFFECT ON MITOTIC DIVISIONS IN LENTIL (*Lens culinaris medik.*)

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Lentil, scientifically known as *Lens culinaris* Medik. is a major grain legume crop which is found in West Asia, North Africa and many other areas of the world. Lentil is not very competitive crop with many of the grasses or weed species that infest farm fields, that's why weed control before planting and early in the growing season is critical.

Fusilade (Fluazifop-p-butyl) is a phenoxy herbicide which plays a key role in controlling weeds in lentil fields. It gets absorbed quickly through leaf surfaces and hydrolyzes to fluazifop acid rapidly. It is then transported in phloem and mounts up in the meristems where it disrupts the production of lipids in susceptible species[1]. In Turkey, Fusalide is not only used to control weed in lentils but also in many other crops like soybean, cotton, sugarbeet and tomatoes. The field application of herbicides is widely used in leguminous plant cultivation.

Phytotoxic as well as genotoxic impacts of different pesticides have been determined in different organisms[2]. However, the investigations about the effects of Fusilade are incomplete with the observations mostly in animal cells. Acute as well as chronic toxicity of Fusilade is extensively investigated on birds, mammals, fishes as well as fungus[3].

Accordingly, scientists performed an experiment in order to study the genotoxic effects of Fusilade in the mitotic cell division in lentil root tip cells. To accomplish this target, scientists employed the different doses (0.25, 5, 1 and 1.5%) of Fusilade. Afterwards, root tips after having grown to a certain length were stained according to aceto orcein squash procedure and the number of abnormal cells was counted in each phase of mitosis[4].

This study revealed that Fusilade possess the capability to cause production of a large number of mitotic abnormalities. These abnormalities appeared in varying degrees depending on the dose.

The types of abnormalities produced were laggards of the chromosomes, c-metaphase, bridges, stickiness, nucleus deformation as well as chromatin granulation. Thus, it was observed that Fusilade can produce negative impacts on mitotic divisions in lentil root tip cells.

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