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Drug and Pesticides-Induced Oxidative Stress and Apoptosis

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Message from the Guest Editor

Drugs and pesticides are often used to improve the quality of human life directly (drugs) or indirectly (pesticides, food safety security), promoting better conditions for human health. However, excessive use or abuse of these compounds leads to various forms of resistance in target organisms, such as pathogenic microorganisms, insect vectors, etc. In addition to these effects, we can identify cytotoxicity in non-target organisms, as has been reported in humans. It has been reported that these cytotoxic effects may start with a high rate of oxidative stress, mainly with the production of mitochondrial reactive oxygen species (ROS) that trigger the generation of intracellular molecules such as malondialdehyde as a product of lipid peroxidation by ROS, activation of the inflammasome complex or activation of cell death pathways related to the BCL-2 family or the increased activity of caspase enzymes that will lead the cell to its imminent death. This possible concomitant effect between drugs and pesticides is always evaluated separately in vitro or in vivo, hence the importance of further investigating the mechanisms underlying the toxic effects of drugs and pesticides.



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Message from the Editor-in-Chief

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