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Recent Advances in Ribosome-Inactivating Proteins and Related Lectins: Analytical Methods, Toxicology and Therapeutical Potential

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Message from the Guest Editors

Ribosome-inactivating proteins (RIPs) cause the inactivation of ribosomes by linking adenine 4324 to the ribosome–phosphate backbone of the 28 rRNA of the large ribosome subunit, leading to hydrolysis of the N-glycosidic bond and the subsequent arrest of protein synthesis. Other enzymatic activities of RIPs such as polynucleotide adenosine glycosidase on nucleic acids have also been described. Most RIPs are of plant origin, where a protective role against predators and pathogens has been proposed, a progressive decrease in RIPs occurring in the fruits along ripening and in the leaves as these become senescent. Some other RIPs have been extracted from bacteria, fungi and algae.

Some two-chain (type 2) RIPs display high toxicity, such as ricin, and due to the wide use of plants as food and in folk medicine, the presence of these proteins should be a cause of concern. Nonetheless, its toxicity, together with the lectin activity and the possibility of preparing conjugates and immunotoxins could serve as drugs in targeted therapy, especially with less toxic native RIPs.

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Message from the Editor-in-Chief

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