

Peroxynitrite Scavenging Activity of Marine Plants Extracts

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Abstract

Peroxynitrite(ONOO⁻), a cytotoxic reactive species that can be formed by the combination of superoxide($\cdot O_2^-$) and nitric oxide($\cdot NO$) radicals, is generated in vivo by, for example, endothelial cells, Kupffer cells, neutrophils and macrophages. Recently, their ability to protect against peroxynitrite [oxoperoxonitrate] toxicity has gained much interest. Peroxynitrite toxicity is associated with several diseases, for instance airway diseases, cardiovascular and neurological diseases. Due to the lack of endogenous enzymes responsible for ONOO⁻ inactivation, developing specific ONOO⁻ scavengers is considered important. There are few reports in the medical literature of ONOO⁻ scavenging activities from marine plants. The purpose of our study was to evaluate the ONOO⁻ scavenging ability of various saltmarsh plants and seaweeds extracts for protection against biological damage by ONOO⁻. Sixteen saltmarsh plants and thirty-two seaweeds extracts were screened for their ONOO⁻ scavenging activities with the use of a fluorometric method. The potency of scavenging activity following the addition of authentic ONOO⁻ was in the following order : *Chondrus ocellatus*>*Porphyra suborbiculata*>*Sargassum confusum*>*Halymenia acuminata*>*Calystegia soldanella*. It was found that *Chondrus ocellatus* are excellent scavengers of peroxynitrite. Compared to the known peroxynitrite scavenger penicillamine, the most active *Chondrus ocellatus* extracts proved to be equal, roughly. The further investigation for their active components of *Chondrus ocellatus* is in progress.

References

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