World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:10, No:07, 2016

Screening of Some Saudi Plants for Their Alleviating Effect on the Exaggerated Vasoconstriction in Metabolic Syndrome

Authors : Hossam M. Abdallah, Ali M. El-Halawany, Gamal A. Mohamed, Khalid Z. Alshali, Zainy M. Banjar, Hany A. El-Bassossy

Abstract : Hypertension and vascular dysfunction are major components and complications of many diseases like metabolic syndrome. In addition, vascular dysfunction is considered the initial step in diabetic atherosclerosis, the main etiology for mortality and a great percent of morbidity in diabetic patients. In spite of the significant developments in antidiabetic therapy, diabetic complications, particularly seen in long-term diabetes, continue to be seriously deleterious. Herbal drugs are prescribed widely in treatment of different aliment because of their effectiveness, fewer side effects and relatively low cost. Nine plants belong to five different families grown in Kingdom of Saudi Arabia were evaluated for their effect on exaggerated vasoconstriction and impaired relaxation in aortae isolated from metabolic syndrome rats. The aerial parts of Onopordum ambiguum Fresen. (OA), Astragalus abyssinicus Steud. (AA), Pulicaria Arabica Cass. (PA), Echinops sheilae Kit Tan (ES), Aizoon canariense L. (AC), Cleome viscosa L. (CV), Chrozophora oblongifolia (Delile) A.Juss. ex Spreng (CO), Centaurea pseudosinaica Mouterde (CP) and Tephrosia nubica Baker (TN) were dried and extracted with methanol. The effect of thirty minute incubation with the total extracts (10-330 µg/ml) or their fractions on the exaggerated vasoconstriction response to phenylephrine (10nM to 10microM) and impaired vasodilation to acetylcholine (10-330 µg /ml) of aortae isolated from metabolic syndrome animals was studied. Incubating aortae isolated from metabolic syndrome animals with total methanol extract of OA, AA, PA, AC, CV, and TN at concentrations (10-330 microgram/ml) in the organ bath led to concentration dependent alleviation of exaggerated vasoconstriction response to phenylephrine without having beneficial effect on impaired vasodilation to acetylcholine. In conclusion, addition of OA, AA, PA, AC, CV and TN to the standard therapies may provide superior means to alleviate the associated vascular complications.

Keywords : vascular dysfunction, exaggerated vasoconstriction, metabolic syndrome, Saudi plants
Conference Title : ICMPNP 2016 : International Conference on Medicinal Plants and Natural Products
Conference Location : Paris, France
Conference Dates : July 25-26, 2016