

Antioxidant, Antibacterial and Functional Group Analysis of Ethanolic Extract of *Hylocereus undatus* and *Garcinia indica* by Using Fourier Transform Infrared Spectroscopy

Authors : Ajay Krishnamurthy, Mariyappan Mahesh Kumar, Sellamuthu Periyar Selvam

Abstract : Fruits are considered as functional foods due to the presence of various bioactive compounds available such as polyphenols, which are beneficial to health when consumed as part of our diet. The primary objective of this study was to analyze the various functional groups present in ethanolic extracts of *Hylocereus undatus* and *Garcinia indica* and also measure their antibacterial and antioxidant potential respectively thereby affirming its nutraceutical potential. To fulfill our objective, a Fourier - transform Infrared Spectroscopy (FTIR) was conducted for functional group analysis, Total Phenolic Content and DPPH free radical scavenging activity for measuring its anti-oxidant potential and agar-well diffusion assay for antibacterial potential. On careful observation and analysis of the spectrum it was found that both the fruit extracts contain similar compounds viz. Phenols, Alkanes, Alkenes, Aldehydes, Ketones, Carboxylic Acid and Amines. Total phenolic content of *H.undatus* and *G.indica* was estimated to be $(26.85 \pm 1.84 \text{ mg GAE/100g})$ and $(32.84 \pm 1.63 \text{ mg GAE/100g})$ respectively which corresponds to an inhibition of 84% and 81% respectively. *H.undatus* shows an inhibition of $(3.4 \pm 2.1\text{mm})$ in gram-positive and $(4.2 \pm 2.24\text{mm})$ in gram-negative organism on the other hand *G.indica* shows $(2.1 \pm 0.98\text{mm})$ in gram-positive and $(3.1 \pm 1.44\text{mm})$ in gram negative. The presence of such diverse compounds in the fruits helps us to understand the necessity for the inclusion of fruits in our daily diet and also helps the pharmaceutical industry in realizing the importance of exotic fruits as a potential nutraceutical.

Keywords : DPPH, fourier-transform infrared spectroscopy (FTIR), *Hylocereus undatus*, *Garcinia indica*

Conference Title : ICNSFF 2018 : International Conference on Nutraceuticals, Supplements and Functional Foods

Conference Location : Singapore, Singapore

Conference Dates : March 22-23, 2018