World Academy of Science, Engineering and Technology
International Journal of Biotechnology and Bioengineering
Vol:11, No:06, 2017

Activation of Caspase 3 by Terpenoids and Flavonoids in Cancer Cell Lines

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Abstract : Caspase 3, a member of cysteine-aspartic acid protease family, is an imperative indicator for cell death particularly when substantiating apoptosis. Thus, caspase 3 is an interesting target for the discovery and development of anticancer agent. We adopted a four level assessment of both terpenoids and flavonoids and thus experimentally performed the enzymatic assay in cell free system as well as in cancer cell line which was validated through real time expression and molecular interaction studies. A significant difference was observed with both the class of natural products indicating terpenoids as better activators of caspase 3 compared to flavonoids both in the cell free system as well as in cell lines. The expression analysis, activation constant and binding energy also correlate well with the enzyme activity. Overall, terpenoids had an unswerving effect on caspase 3 in all the tested system while flavonoids indirectly affect enzyme activity.

Keywords : Caspase 3, terpenoids, flavonoids, activation constant, binding energy
Conference Title : ICNP 2017 : International Conference on Natural Products
Conference Location : London, United Kingdom
Conference Dates : June 28-29, 2017