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Fighting Cancer by Phytochemicals

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Editorial

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Editorial

Nature is considered as an enormous contributor in anticancer drugs. Although more than half century had passed on its discovery, taxol is still, till now, a unique anticancer agent. Other compounds as vincristine, vinblastine, camptothecins, etoposide and others are plant derived and effective against cancer.A fact that out of 121 drugs prescribed for cancer treatment till date, 90 are derived from plant sources [1].

In view of the recent advances made in the discovery of anticancer agents, the present article represents some of them:

Eucalrobusone C, a new bioactive compound (*Eucalyptus robusta* leaves) exerted strong anti-proliferative activity against colon (HCC) cancerous cells. It induced apoptosis through the caspase-dependent mitochondrial apoptotic pathway which associated with decreased Bcl-2 expression and increased Bax expression, resulting in a loss of mitochondrial membrane potential and the cell cycle was arrested at S phase. These results indicate that Eucalrobusone C possesses great potential as a promising candidate for the treatment of HCC [2].

A linear α-glucan chain, extracted from *Coriolus Versicolar*, composed of only (1→ -6)-α-D-Glcp exerts antitumor activity *in vitro* and *in vivo* towards Sarcoma-180 cells by its immune modulation activity [3].

Altholactone, a natural phytochemical isolated from *Goniothalamus* spp that induces cytotoxic activity against prostate cancer DU145 cells.The anticancer effect was through inhibition of NF-κB and STAT3 activity and repression of p65- and TNF-α-enhanced NF-κB transcriptional activity.It also inhibited constitutive and IL-6-induced transcriptional activity of STAT3 [4].

A marine compound, frondoside A, a promising candidate for the treatment of human urothelial carcinomas shows high cytotoxicity in urothelial carcinoma cells with IC_{50s} ranging from 0.55 to 2.33 μM. It induces apoptosis associated with the regulation of caspase -3, -8, and -9, PARP, Bax, p21, DNA fragmentation, and externalization of phosphatidylserine [5].

A new sesquiterpene, dryofraterpene A: (7*S*, 10*S*)-2, 3-dihydroxy-calamenene-15-carboxylic acid methyl ester, isolated from *Dryopterisfragrans* (L.). Schott shows anticancer activity against A549, MCF7, HepG2, HeLa, and PC-3cancerous cell lines [6].

Saponins class shares by high percent in anticancer drugs. Two new saponins (1→ 2)-1-O-{(3β)-28-oxo-3-[(2-O-β-d-xylopyranosyl-β-d-glucopyranosyl)oxy]olean-12-en-28-yl}-β-d-glucopyranose (1) and 1-O-[(3β)-28- oxo-3-{[β-d-xylopyranosyl-(1→2)-α-l-arabinopyranosyl-(1→6)-2-acetamido-2-deoxy-β-d glucopyranosyl]oxy} olean-12-en-28-yl]β-d-glucopyranose (2),) isolated from *Albizia anthelmintica* Brongn. Leaves exert anticancer activity against HepG-2 and HCT-116 cell lines. The second compound showed more cytotoxic activity against the HepG2 while the first one showed the more cytotoxic effect on HCT-116 cells [7].

Conclusion

Plant derived natural products hold great promise for discovery and development of new phytochemicals against cancer with novel biochemical mechanisms of

action that remain of much interest as compounds that might lead to the alleviation of the cancer scourge.

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