

Libyan medicinal plants and their cytotoxic compounds

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Libya is a vast country from North Africa. It comprises mainly huge Sahara Desert, the Mediterranean Coast extending over 2,000 km, sea grass meadows covering 1,500 km between Gulf of Sirte in Libya and the Gulf of Gabes in Tunisia, and the Green Mountains (the height can be up to 800 m) including dense forests. Plants from the coastal zone are generally grasses and herbs, the Green Mountains have grasses and trees like junipers, figs and olives as forests, and the desert produces palm, figs and dates [1,2]. There are over 130 vascular plants species that can be considered endemic to the Libyan flora [1]. Many of these plants have been used in the Libyan folk medicine over centuries, even for the treatment of cancers and tumours [3], and *Arbutus pavarii*, *Asphodelus aestivus*, *Juniperus phoenicea* and *Ruta chalepensis* are four of such medicinal plants [2]. Various extracts of these plants were screened for their cytotoxicity against five human cancer cell lines: urinary bladder cancer (EJ-138), liver hepatocellular carcinoma (HEPG2), lung cancer (A549), breast cancer (MCF7) and prostate cancer (PC3) cell lines. A bioassay-guided approach [4] was adopted to isolate and identify cytotoxic secondary metabolites from active extracts and fractions. The cytotoxic potential of the isolated compounds was assessed. This talk will present an overview of the key findings covering distribution, traditional uses, reports on previous studies, isolation and structure elucidation of active compounds, and will provide some scientific rationale behind traditional uses of these plants for the treatment of cancers and tumours.

References

- [1] Gawhari AMH et al. *Phytotaxa* 2018; 338:1-16.
- [2] Louhaichi M et al. *Advances in Environmental Biology* 2011; 5:359-370.
- [3] Elmezogi J et al. *Indonesian Journal of Pharmacy* 2013; 24:127-130.
- [4] Sarker SD and Nahar L (2012) *Natural Products Isolation*, 3rd Edition, Humana Press – Springer-Verlag, New Jersey, USA.