Camptotheca

Plant sources of anti-cancer agents are plants, the derivatives of which have been shown to be usable for the treatment or prevention of cancer in humans.[1][2]

In the 1950s, scientists began systematically examining natural organisms as a source of useful anti-cancer substances.[1] It has been argued that "the use of natural products has been the single most successful strategy in the discovery of novel medicines".[3]

Plants need to defend themselves from attack by micro-organisms, in particular fungi, and they do this by producing anti-fungal chemicals that are toxic to fungi. Because fungal and human cells are similar at a biochemical level it is often the case that chemical compounds intended for plant defence have an inhibitory effect on human cells, including human cancer cells.[4] Those plant chemicals that are selectively more toxic to cancer cells than normal cells have been discovered in screening programs and developed as chemotherapy drugs[5]

Some plants that indicate potential as an anticancer agent in laboratory-based in vitro research – for example, Typhonium flagelliforme,[citation needed] and Murraya koenigii[6] are currently being studied. There can be many years between promising laboratory work and the availability of an effective anti-cancer drug: Monroe Eliot Wall discovered anti-cancer properties in Camptotheca in 1958, but it was not until 1996 – after further research and rounds of clinical trials – that topotecan, a synthetic derivative of a chemical in the plant, was approved for use by the US Food and Drug Administration.[7]

The cancer treatment drug topotecan is a synthetic chemical compound similar in chemical structure to camptothecin which is found in extracts of Camptotheca (happy tree).[7]

Vinca alkaloids were originally manufactured by extracting them from Catharanthus (Madagascar Periwinkle).[1]

Two chemotherapy drugs, etoposide and teniposide, are synthetic chemical compounds similar in chemical structure to the toxin podophyllotoxin which is found in Podophyllum peltatum (May Apple).[1]

Chemicals extracted from clippings of Taxus brevifolia (Pacific yew) have been used as the basis for two chemotherapy drugs, docetaxel and paclitaxel.[8]

Contains ingenol mebutate (Picato) which is used to treat skin cancer[9]

Trastuzumab emtansine (Kadcyla) is an antibody conjugated to a synthetic derivative of the cytotoxic principle of the Ethiopian plant Maytenus ovatus. It used to treat breast cancer.[10]

Mappia foetida

Some of the research has been showed that it has an effective anticancer property against breast cancer [1]