

Anti-cancer activity of South African plants and their applications

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South African plants were evaluated for their anti-cancer properties and plant samples were collected throughout South Africa. Voucher specimens were deposited and identified at the South African National Biodiversity Institute. Plant extracts were prepared and screened for *in vitro* anti-cancer activity against a panel of three human cell lines (breast MCF7, renal TK10 and melanoma UACC62) at the Council for Scientific and Industrial Research. Plant extracts that exhibited anti-cancer activity against these three human cell lines were screened by the NCI against sixty human cancer cell lines organized into sub-panels representing leukaemia, melanoma, cancer of the lung, colon, kidney, ovary, central nervous system, breast and prostate. More than 7500 plant extracts were screened for *in vitro* anticancer activity over the last 15 years. Hits were classified into four categories based on their total growth inhibition of the cell lines. A hit rate of 5.9% was obtained for extracts which showed activity and these were screened by the NCI against a panel of sixty human cancer cell lines. The extracts of plant species with limited published information for their anticancer properties were subjected to bioassay-guided fractionation and the active constituents isolated and identified. Although the extracts of the plants were randomly selected, 68% of these plant species which were hits in the screening programme are reported to be used medicinally.

Biography

Prof. Gerda Fouche has been involved in natural product research for the last eighteen years as Organic Chemist at the Council for Scientific and Industrial Research in South Africa. Experience includes management and collaboration of projects with multi-disciplinary research teams at international and national research institutes, universities, government departments and private companies. The research projects are aimed at the discovery and development of drug/herbal leads from the biodiversity of South Africa. These projects involve scientific validation of medicinal plants, through interactions with owners of indigenous knowledge and purification, isolation and structure elucidation of active constituents from these plants in various therapeutic areas such as asthma, cancer, inflammation, benign prostatic hyperplasia, erectile dysfunction, oxidative stress, Alzheimer etc. She has presented at national and international conferences and workshops and has published more than 30 articles in peer-reviewed journals and has 6 international patents to her credit.