

Antitumour potential of pollen extract on Lewis lung carcinoma implanted intraperitoneally in syngeneic mice.

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A defined pollen extract of selected plants is used to treat chronic prostatitis or benign hyperplasia. The antineoplastic potential of the water-soluble fraction (Cernitin T60) of the pollen extract against Lewis lung carcinoma implanted i.p. in syngeneic mice was investigated. Cernitin T60 was not cytotoxic against KB cells at concentrations up to 2.5 mg/ml. Cernitin T60 (0.5 g/kg) significantly prolonged the lifespan of mice carrying the tumour without any apparent side effects. Cernitin T60 demonstrated beneficial therapeutic effects in an additive fashion on the life-span of mice when it was combined with standard cytotoxic antineoplastic drugs such as adriamycin [doxorubicin], cisplatin, vincristine, methotrexate, fluorouracil, or thioguanine. The antineoplastic potential of Cernitin T60 was completely abolished by treatment with inhibitors of macrophage functions (2-chloroadenosine or carrageenan); the antineoplastic potential of Cernitin T60 was not abolished following treatment with the T-cell inhibitor, cyclosporin A. Cernitin T60 appears to be a potent immunostimulator of macrophages.

One fraction, designated FV-7, in the water soluble ingredient of the pollen extract Cernilton was found to be inhibitory to the growth of a prostate cancer cell line. Characterization of FV-7 by high-resolution mass spectrometry and nuclear magnetic resonance identified the fraction as hydroxamic acid, 2,4-dihydroxy-2H-1, 4-benzoxazin-3 (4H)-one (DIBOA). To confirm this further, we synthesized an authentic sample of DIBOA and found subsequently that the synthetic DIBOA was structurally indistinguishable from FV-7. Furthermore, in a separate experiment we compared the in vitro effects of FV-7 and DIBOA on the growth of a prostate cancer cell line and found that in both cases the effect was inhibitory and that the inhibition curves obtained for both compounds were virtually identical.