Inhibition of the Initiation Stage of Carcinogenesis by *Salvia disermas* Constituents

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*Z. Naturforsch.* 64c, 831 – 839 (2009); received April 26/June 14, 2009

Phytochemical studies of an ethanolic extract of the aerial parts of *Salvia disermas* resulted in the isolation of seven known compounds, rosmarinic (1) and caffeic (2) acids, salvigenin (3), luteolin (4), luteolin 7-O-β-arabinoside (5), luteolin 7-O-β-glucoside (6), and octillol II (7). The initiation stage of carcinogenesis is triggered by activation of procarcinogens by phase I enzymes, such as cytochrome P-450 1A, and oxidative stress that leads to DNA damage. The initiation stage is countered by phase II detoxification enzymes such as glutathione S-transferases (GST), quinine reductase (QR), epoxide hydrolase (mEH) besides conjugation with thiols. We aimed to investigate the cancer chemopreventive and tumour anti-initiating activity of the ethanolic extract of the aerial parts of *Salvia disermas* and its constituents. The *S. disermas* extract was a promising inhibitor of CYP1A activity, inducer of GST, QR, and mEH activities, enhancer of thiol content, radical scavenger, and inhibitor of DNA damage. On the other hand, 3 was an enhancer of thiol content and QR activity, while 4 was an inhibitor of CYP1A activity, inducer of QR activity, and radical scavenger of \(\text{ROO}^*\), and 5 was an inducer of GST activity and inhibitor of DNA damage. The present study indicated that the ethanolic extract of *S. disermas* and 4 are promising anti-initiating and multipotent blocking agents.

Key words: Tumour Anti-Initiating, *Salvia disermas*, Flavonoids