

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

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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*-arabinoside (**5**), luteolin 7-*O*-glucoside (**6**), and ocotillol 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 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