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Investigation of the Anti-inflammatory Potential of Glucocapparin Isolated from *Capparis ovata*

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Aim of the study: Multiple sclerosis (MS) is an inflammatory autoimmune, demyelinating disease of the central nervous system.*Capparis ovata* is an aromatic plant, characteristic for the Mediterranean diet. It has been shown to be used as an alternative and complementary medicine for the treatment of MS in Turkey. Flower buds and fruits of *Capparis ovata* contain biologically active compounds such as flavonoids (kaempferol, rutin), glucosinolates (glucocapparin, glucoiberin, glucobrassicin) and alkaloids which are known to provide health-improving benefits due to their various biological activities (antioxidant, antitumoral, antidiabetic, anti-inflammatory, antimicrobial, neuroprotective). In the present study, glucocapparinwas tested for its anti-inflammatory effects on selected proinflammatory and inflammatory genes believed to be important in MS pathophysiology using SH-SY5Y cells.

Material and Methods: Glucocapparin was isolated from *Capparis ovata* and further studied for anti-neuroinflammatory effects in SH-SY5Y cells. The human neuroblastoma cell line SH-SY5Ywas purchased American Tissue Culture Collection. SH-SY5Y cells were grown in monolayer culture in DMEM:F12 medium containing 10% FBS, 0.5% penicillin/streptomycin at 37°C in a humidified atmosphere comprised of 95% air and 5% CO_2. Cell viability was assessed using lactate dehydrogenase (LDH) activity in the media conditioned by the crystal violet cell staining. Total RNA was isolated using 'RNeasy Mini Kit' (Qiagen) by the manufacturer's standard protocol.Quantitative Real Time PCR (qRT-PCR) analysis was performed using SYBR Green qPCR Master Mix (Abm) in an Exicycler 96 Real Time Quantitative Thermal Block PCR System (Bioneer) for each gene.The mRNA levels of genes (CCL5, CXCL9, CXCL10, GFAP, MMP9, NF-κB1, TNFα) were determined by qRT-PCR.

Results: Glucocapparin did not significantly elicit the CCL5, CXCL9, CXCL10, MMP9, TNFα genes expression. Moreover, we have found out that the glucocapparin significantly inhibited the expression of NFKB gene given above in SH-SY5Y cells. These results support that glucocapparin was found to be non-effective for MS treatment.

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