

COMPREHENSIVE EVALUATION OF GEMMOTHERAPY EXTRACTS GENERATED EFFECTS USING ANIMAL MODELS

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Phytotherapy and health promoting activities of plants are gaining an increasing attention among scientists. Accordingly, we analyzed the bioactive compounds of the olive (*Olea europea*), almond (*Prunus amygdalus*) and black mulberry (*Morus nigra*) plant bud extracts also gemmotherapy extracts (GTEs) using the HPLC-MS. We identified different active compounds for each extract in which the biggest percentages were flavonoids, amino acids and polyphenols. Each identified compound was literature reviewed for their health promoting effects. Approximately, 42% of all the identified bioactive compounds of the three extracts with reported biological activities, proved to feature anti-inflammatory activities, anti-cancer activities, antioxidant activities and anti-microbial activities. To confirm these reported health promoting activities, the *Drosophila melanogaster* model systems was used during this research to assess the effects of olive, almond and black mulberry GTEs on the viability and developmental timing. We used the high-sugar type of model, which is a situation when the synchronized *Drosophila* larvae raised on a high-fructose diet (HS-media) would induce inflammatory state besides multiple life-threatening effects. We were able to prove that the Normal Sugar experiments performed at 25°C and 28°C temperatures conclude that the GTEs showed clear concentration dependent effects that would interfere antagonistically with the temperature dependent metabolic rate regulation, while at HS conditions some rescue effects were also apparent.