

Anti-inflammatory and Antioxidant potentials of *Vitex negundo* Linn and its Molecular mechanism

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ABSTRACT

There is considerable ethnomedical and pharmacological evidence that *Vitex negundo* possesses analgesic, antipyretic, antihistaminic, antiallergic, antibacterial, antioxidant and antiphlegmatic, potential. In the present study an attempt was made to identify the beneficial effect of bioactive compounds of *V.negundo* and to check its antioxidant and anti-inflammatory potentiality. The aqueous and organic extracts were subjected to the screening of phytochemical analysis and the results confirmed the presence of phyto constituents like carbohydrates, fatty acids, proteins, amino acids, saponins, tannins, flavanoids, alkaloids, glycosides, polyphenols and carotenoids. The results of phytochemical analysis reveal that the ethanol, chloroform and aqueous are the best solvents to extract the possible phytochemicals from *V.negundo*. So these solvents were further used for the quantification of phytotochemicals. The ethanol extract shows the maximum quantity of phenols, flavonoids and tannins. This confirms that ethanol is the best solvent to extract the bioactive phytochemicals from *V.negundo*. The GC-MS analysis for the identification of bioactive compounds confirms the existence of 11 different bioactive compounds. The antioxidant properties of the *V.negundo* leaves was evaluated by various antioxidant assays, including DPPH, FRAP and NO. The antioxidant activities were compared to standard antioxidant BHA. The ethanol extract of *V.negundo* was found to have good antioxidant capacity compared with the reference standard and thus can be used as potential radical scavenger against deleterious damages caused by the free radicals. The best result of radical scavenging activity was observed at concentration of 120µg/ml of the ethanol extract. The Anti-inflammatory effect of ethanol extract from *V.negundo* leaf was determined by protein denaturation assay. Results showed 52.24% inhibition was observed at the concentration of 120µg/ml. The results of the present work, proves the high antioxidant and anti-inflammatory effect observed for ethanol extract from *V.negundo* leaf and also it has a potential of preventing human diseases in which free radicals are involved, such as inflammation.