Phytochemical Screening and Acute Toxicity of Nepeta sibirica L

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Abstract

In recent years, the use of herbal medicines has increased. To study the biological and pharmacological action of medicinal plants based on Mongolia's natural resources and the rich resources of traditional medicine is the base to create new herbal medicines. Nepeta sibirica L. has been used for the treatment of various diseases and is one of the traditional medicines of Mongolia. Therefore, this study will be the basis for further phytochemical and pharmacological study.

In this study we obtained aqueous, 40% and 70% ethanol extracts of Nepeta sibirica L. by the maceration method with following qualitative evaluation by thin layer chromatography and determination of total phenolics and flavonoids according to the pharmacopoeia methods.

Evaluated and acute oral toxicity of aqueous extract in mice using OECD 423 guideline. All animals in the respective dose groups 500, 1000, 1500, 2000, 3000, 4000 and 5000 mg/kg body weight were observed for period time. The 2 h, 24 h, 48 h, 72 h mortality rate, behavioral changes and intoxication symptoms were determined and compared with the control group.

The thin layer chromatography analyses indicated that the presence of some phenolics, flavonoids and terpenes in all prepared extracts. The content of total phenolics was calculated in the aqueous extract as 3.80±0.16, in the 40 % ethanol extract as 3.94±0.04 and in the 70 % ethanol extract as 3.74±0.05 in percentage equivalent to the standard of gallic acid, while total flavonoids 2.00±0.02, 1.44±0.17 and 2.00±0.12 percentages as the standard of rutin, respectively. Results exhibited that both classes of biological active compounds are almost in the same amount in all prepared extracts. The oral LD50 of the aqueous extract was found to be greater than 5000 mg/kg. The oral median lethal dose results indicate that the aqueous extract of Nepeta sibirica L. is in category 5 by oral administration at the tested doses by OECD 423 classification.

Keywords: OECD, aqueous extract, LD50, flavonoids, terpenes.

Abbreviations: OECD – Organization for Economics and Co-operation development;
LD50 – Lethal dose 50%.