

## Structure Modification of Leonurine to Improve Its Potency as Aphrodisiac

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**Abstract :** An aphrodisiac is a substance contained in food or drug that can arouse sexual instinct and increase pleasure while working, these substances derived from plants, animals, and minerals. When consuming substances that have aphrodisiac activity and duration can improve the sexual instinct. The natural aphrodisiac effect can be obtained through plants, animals, and minerals. Leonurine compound has aphrodisiac activity, these compounds can be isolated from plants of Leonurus Sp, Sundanese people is known as deundereman, this plant is empirical has aphrodisiac activity and based on the isolation of active compounds from plants known to contain compounds leonurine, so that the compound is expected to have activity aphrodisiac. Leonurine compound can be isolated from plants or synthesized chemically with material dasa siringat acid. Leonurine compound can be obtained commercial and derivatives of these compounds can be synthesized in an effort to increase its activity. This study aims to obtain derivatives leonurine better aphrodisiac activity compared with the parent compound, modified the structure of the compounds in the form leonurin guanidino butyl ester group with butyl amin and bromoethanol. ArgusLab program version 4.0.1 is used to determine the binding energy, hydrogen bonds and amino acids involved in the interaction of the compound PDE5 receptor. The in vivo test leonurine compounds and derivatives as an aphrodisiac ingredients and hormone testosterone levels using 27 male rats Wistar strain and 9 female mice of the same species, ages ranged from 12 weeks rats weighing + 200 g / tail. The test animal is divided into 9 groups according to the type of compounds and the dose given. Each treatment group was orally administered 2 ml per day for 5 days. On the sixth day was observed male rat sexual behavior and taking blood from the heart to measure testosterone levels using ELISA technique. Statistical analysis was performed in this study is the ANOVA test Least Square Differences (LSD) using the program Statistical Product and Service Solutions (SPSS). Aphrodisiac efficacy of the leonurine compound and its derivatives have proven in silico and in vivo test, the in silico testing leonurine derivatives have smaller binding energy derivatives leonurine so that activity better than leonurine compounds. Testing in vivo using rats of wistar strain that better leonurine derivative of this compound shows leonurine that in silico studies in parallel with in vivo tests. Modification of the structure in the form of guanidine butyl ester group with butyl amin and bromoethanol increase compared leonurine compound for aphrodisiac activity, testosterone derivatives of compounds leonurine experienced a significant improvement especial is 1RD compounds especially at doses of 100 and 150 mg/bb. The results showed that the compound leonurine and its compounds contain aphrodisiac activity and increase the amount of testosterone in the blood. The compound test used in this study acts as a steroid precursor resulting in increased testosterone.

**Keywords :** aphrodisiac dysfunction erectile leonurine 1-RD 2-RD, dysfunction, erectile leonurine, 1-RD 2-RD

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