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Effect of *Lippia citriodora* Extract Supplementation on Quality of Rabbit Semen *in Vivo* and *in Vitro*

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Main component of *Lippia citriodora* extract – verbascoside is one of the most powerful free radical scavengers which exhibits a wide biological activity [1,2]. During *in vivo* study, total of 20 New Zealand white rabbit bucks were split into two homogenous groups, one control (CON) and one verbascoside-supplemented (0.1%) in feed mixture (EXP) [3,4] and later on *in vitro* analysis of verbascoside effect on rabbit spermatozoa motility aspects were executed. Parameters were measured using CASA method – automated microscopic spermatozoa analysis [5]. Spermatozoa concentration, ejaculate volume, spermatozoa motility, progressive motility, distance parameters, velocity parameters and type of spermatozoa movement were all negatively affected by the extract of *Lippia citriodora* leaves after first four weeks of supplementation until the end of the experiment (8 weeks). All spermatozoa traits returned to normal values in line within control group after four weeks suspension of dietary treatment. For *in vitro* investigations, ejaculates of 10 male New Zealand white bucks were collected by using artificial vagina. Subsequently, samples were diluted in physiological saline solution containing different concentrations of verbascoside – 0, 0.0024, 0.0219, 0.157, 120 mg/ml (Ctrl, VB1, VB2, VB3, VB4 groups, respectively), using a dilution ratio of 1:4. Obtained data proved that verbascoside at concentration of 0.0024 and 0.0219 mg/ml has no adverse effect on spermatozoa. Furthermore, we found out that verbascoside at higher concentrations (0.157 and 120.0 mg/ml) significantly altered all the motility parameters analyzed in the experiment. To sum up a possible negative effect of verbascoside supplementation into feed mixture (0.1%) on semen quality parameters in rabbit bucks as well as *in vitro* can be stated, obviously considering that target organs of antioxidant activities of phenylpropanoid glycosides are various. In addition, it has to be emphasized that the extract showed a reversible action since the semen traits of treated animals returned to the normality after the dietary administration period.

References:

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