



Effect of Black Seed (*Nigella sativa*) Ethanol Extract on the Expression of Hypoxia Inducible Factor-1 α (HIF-1 α) and Endothelial Nitric Oxide Synthase(eNOS) in Placenta of Preeclampsia Mice Model

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Abstract : About 10-15% of direct maternal death is caused by preeclampsia and eclampsia. The first stage pathogenesis of preeclampsia is indicated by an increase in HIF-1 α placenta and AT1-AA. The second stage of preeclampsia is indicated by a decrease of eNOS placenta expression. Black seed (*Nigella sativa*) has thymoquinone and thymol as the active substances has shown potential in the prevention and therapy of preeclampsia. The trial study used 30 pregnant mice (*Mus musculus*) randomly divided into six groups. Two groups was for control (positive and negative) and other 4 groups were for experimental treatment. Positive control and experiment groups were injected with severe preeclampsia serum in pregnant women. The serum-injected experimental mice group were administered with various doses of *N. sativa* ethanol extract (500, 1000, 1500, and 2000 mg/kg/day for each group). Mice with a blood pressure of $\geq 140/90$ mmHg and proteinuria of $\geq 10\mu\text{g/day}$ served as preeclampsia mice models. Treatment with ethanol extract of *N. sativa* was performed on days 15 to day 19 of gestation. Data were analyzed to compare the mean of HIF-1 α and eNOS, showing a significant effect of ethanol extract of *N. sativa* in various doses, decreasing the expression of HIF-1 α and increasing eNOS in preeclampsia mice models. The optimal dose for both was 1000 mg/kg/day. The results concluded that the *N. sativa* ethanol extract administration decreased the expression of HIF-1 α and increased eNOS expression in the placenta of preeclampsia mice models.

Keywords : eNOS placenta, ethanol extract of *N. sativa*, HIF-1 α placenta, preeclampsia.

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