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Ashwagandha Roots Extract Attenuate Some Anatomical and Behavioral Outcomes in Rat' Pups After Early Postnatal Induction of Hypothyroidism



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ABSTRACT

BACKGROUND : Thyroid hormones are essential for the growth and maintenance of the central nervous system. Those in charge how quickly brain and neural cells grow and change during development. **Aims of the study:** To explore the ameliorating effect of Ashwagandha Roots extract (*Withania somnifera*) in male rats after early postnatal hypothyroidism induced by propylthiouracil. **Material and methods:** Forty healthy Albino male rat pups were at postnatal day 3(PND3) divided into four groups (10 pups per group): Group 1: Control group, pups received distilled water (D.W.) for 21 days orally then continuous administration for further 21 days. The groups 2, 3, 4 were received Propylthiouracil (1mg/kg) from PND3 for 21 day to induce hypothyroidism state. Then group 2 received D.W. for 21 days from PND24 to PND45 to encounter the same conditions as other groups, while group 3 were received Levothyroxine (4µg/100g/day) orally for further 21days, finally group 4 received Ashwagandha Roots extract (200 mg/kg) orally for 21 day. Hormonal assay, developmental tests, and behavioral tests were done. **Result:** The present study showed that PTU cause significant decrease in total serum T4 hormone level in the hypothyroid pups in comparison to the control group, these deficiencies during development period in rat's life causes severely impairment in growth and development of the rat's brain as well impairing behavior. **Conclusion:** The oral administration of Ashwagandha Roots extract showed ameliorating effects compared to levothyroxine effects on Hypothyroidism and related damage in brain maturation.