

ALCOHOL:NAD OXIDOREDUCTASE IN BRAIN OF RATS FROM A COLONY FED DILUTE ETHANOL FOR MANY GENERATIONS

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Alcohol:NAD oxidoreductase (EC 1.1.1.1) was studied in brain cortex, hypothalamus, cerebellum and midbrain of adult and immature rats, and in the whole encephalon of neonatal rats. The rats used in this study were (i) from a colony which has been given 12% (v/v) aqueous ethanol as the only fluid for 54 generations (E.F. rats); (ii) rats removed from this colony after the forty-eighth generation and thereafter fed water instead of the alcohol solution (E.F./H₂O rats); and (iii) normal rats. Enzyme activity in the 20,000 g supernatant of tissue homogenates was measured by the method of Raskin and Sokoloff. Activity was found to be highest in neonatal rat brain and to decrease as the age increased. Activity in the hypothalamus of adult E.F. rats was significantly higher than that found in the same region of adult E.F./H₂O rats. Immature rat cerebellum alcohol:NAD oxidoreductase activity was higher both in E.F. and E.F./H₂O suggesting a possible genetic change be involved in this