THE INVOLVEMENT OF GABA-ERGIC NEURONS IN THE RELEASE OF DOPAMINE AND AMINO ACIDS NEUROTRANSMITTERS FROM ISOLATED CARP RETINA.

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In the fish retina, subpopulations of horizontal and amacrine cells have been identified as GABAergic neurons and supply a tonic inhibitory input onto other neurons. The present study was conducted to determine whether the GABA antagonist, bicuculline, could modulate the release of dopamine and amino acid neurotransmitters upon exposure to light or darkness. The perfusate was collected from isolated, perfused carp retinal preparations and assayed for dopamine and amino acids by HPLC. Bicuculline (10^{-4}M) increased the release of dopamine but decreased the release of Asp, Glu and Gly. The release of GABA and Tau were not effected. The effects of bicuculline on the release of dopamine and amino acid neurotransmitters were in the same direction of exposure to light. These findings suggest that dopamine-, Asp-, Glu- and Gly-containing retinal neurons are subject to tonic inhibition by GABA in darkness.