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Anxiolytic-like Action of Selected 4-(Alkylamino)-3-nitrocoumarin Derivatives in BALB/c Mice

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In this work we explored the possible polypharmacological potential of the already established antimicrobials against gastrointestinal pathogens, 4-(alkylamino)-3-nitrocoumarins, as antianxiety agents, using a battery of *in vivo* experiments. Three chosen coumarin derivatives, differing in the substituent (*sec*-butylamino, hexadecylamino, or benzylamino) at position 4, at the doses of 25, 50 and 100 mg kg^{-1}, were evaluated in light/dark, open-field, horizontal wire and diazepam-induced sleep models using male BALB/c mice. Depending on the applied dose, all three tested coumarins displayed a noteworthy anxiolytic-like effect. 4-(*sec*-Butylamino)-3-nitro-2*H*-chromen-2-one (**1**), and 4-(hexadecylamino)-3-nitro-2*H*-chromen-2-one (**2**) could be recognized as true anxiolytics in the lowest applied dose, based on three tests, without exerting any sedative effects. Thus, the 3-nitrocoumarin core deserves further chemical diversity exploration in the "antianxiety" direction.

Keywords: coumarin derivatives • anxiety • light/dark test • open-field test