Synthesis and Analgesic-like Effect of (6R, 4S)-p-Mentha-1,8-dien-6-yl-methylene-p-toluenesulfonamide

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The synthesis of a monoterpene-based para-toluenesulfonamide is reported starting from naturally occurring (R)-\textsuperscript{−}-(−)-carvone (1), by 1,2-addition of HCN followed by reduction with lithium aluminum hydride to afford the amino alcohols 3\textsubscript{a} and 3\textsubscript{b}. Tosylation of this mixture with p-toluenesulfonyl chloride furnished sulfonamide 4 in 55\% overall yield. Compound 4 was evaluated in behavior animal models to investigate its effects on the central nervous system. It showed low toxicity and sedative action in mice, indicating it to be psychoactive. It also caused a decrease in the spontaneous motor activity of mice. This depressant effect was confirmed in the acetic acid-induced writhing test, which demonstrated a significant antinociceptive response more potent than 1. The present results provide evidence that sulfonamide 4 has analgesic-like psychopharmacological activity.

\textit{Key words: } p\text{-Toluenesulfonamide, Carvone, Monoterpene, Analgesic Activity, Antinociceptive Activity