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Design and Evaluation of an Ambien–Kava Hybrid Molecule and its Pharmacological Effects

CONFERENCE ABSTRACT

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Abstract

Ambien is a medication used to treat insomnia. This drug is considered a sedative hypnotic which affects the brain's neurotransmitters, creating sleep-inducing effects, and some side effects can include memory issues, sleepwalking, dizziness, and even addiction. Insomnia is a condition that affects sleep, causing people to stay up at night or have difficulty falling asleep. Kava is a natural substance, obtained from the Piper methysticum plant roots, specifically found in parts of the Pacific Islands. Unlike Ambien, Kava is a common supplement used every day for some common side effects like relaxation, reduced anxiety, and sedation effects. This study will explore the pharmacological effect and interactions with Ambien (Zolpidem) and Kava (Dihydrokavain) by combining elements of each to make a single molecule. Both molecules target the gamma-aminobutyric acid type A (GABA-A) receptors, which create sedation effects and help regulate regular sleep. This research aims to explore how the combination of Ambien and Kava can affect pharmacological activity, binding affinity, and even lipophilicity. By using a molecular modeling program, feasibility of this new hybrid compound can be examined.

Expected outcomes include increased sedation effects, increased potency, and even increased duration. This study will help to gain a deeper understanding of drug design, associated with combining two already useful drugs.

Keywords: Ambien, Zolpidem, Kava, Dihydrokavain, insomnia