

عنوان مقاله:

The in vitro Effects of New Albocarbon-based Coumarins on Blood Glucose-controlling Enzymes

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خلاصه مقاله:

The majority of the world's most hazardous pathologies are linked to the oxidative damaging effect of free moieties. One of the diseases associated with these damaging radicals is diabetes. This disease is widely distributed among people of all ages, with the elderly being the most affected. Therefore, it is essential to conduct comprehensive investigations in order to promote the creation of the novel free radical-housing and hypoglycemic compounds. This study involves the synthesis of eight novel albocarbon-based coumarins, which were confirmed by various spectrophotometers. Their hypoglycemic and free radical-housing effects were analyzed. The pharmacokinetic profile was checked in silico using pre-ADMET, known as a free online program. The hypoglycemic influence was tested against two types of the blood glucose-controlling enzymes. In addition, the new compounds' potency index was measured. The free radical-housing potential was analyzed by testing these coumarins' ability to scavenge DDPT and hydroxyl harmful radicals. Pharmacokinetic studies demonstrated that the synthesized albocarbon-based coumarins penetrate the gastrointestinal mucosa very well, and the majority of these compounds penetrate the blood-brain barrier only slightly. These findings suggest the good oral bioavailability along with low neurological toxicity profiles. The investigation of the hypoglycemic influence of these new compounds revealed that they had a less potent enzyme inhibition capacity compared to the standard, with LY Δ being the most powerful one. Besides, the assessment of the free radical-housing potential of these synthesized albocarbon-based coumarins also indicated that all of them were less active than the reference. Among them, LY \circ was the strongest free radical-housing compound from these recognitions, along with the safety and good pharmacokinetic parameters in accordance with the computer-based study. The researchers believed that these new albocarbon-based coumarins can be applied for the creation of new successful drugs with hypoglycemic and free radical-housing effects which can help in the modulation of much serious .pathology

کلمات کلیدی:

Albocarbon-based coumarins, Synthesis, Hypoglycaemic influence, Free radical-housing potential

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