Abstract

The whole plant (leaves, stem, bark) of *Croton sparsiflorus* were extracted in methanol. The crude extracts were partitioned using solvent extraction technique with different solvents at various conditions resulting organic soluble fractions. Antiradical activity of all the fractions of *C. sparsiflorus* was carried out. All fractions showed significant antiradical activity except CSH-2 and CSC-3, maximum DPPH inhibition activity was shown by ACS-2 (95.2%, IC_{50} 7.2µg/ml). Fractions of *C. sparsiflorus* were screened against FRAP, ACS-3 showed highest activity (185.5). Total phenols were also evaluated in the extracts of *C. sparsiflorus*, CSCB-5 showed maximum phenolics. Acetylcholinestrase inhibition assay was performed on the fractions, ACS-2 showed maximum inhibition (96.1µg, IC_{50} 6µg/ml). Twenty two different derivatives of thiazolidinone were synthesized. Synthesis of thiazolidinone derivatives were carried out by ethylcholroacetate, thiourea and aldehydes. Sulphoxidation of these derivatives were carried out by hydrogen peroxide and acetic acid. Structures of these derivatives were confirmed by IR, some of them with NMR. Most of the synthesized compounds showed significant antiradical activity, ASJ-8 showed maximum free radical scavenging activity (68.4%, IC_{50} 150.41µg/ml). In the FRAP assay ASJ-12 has the highest activity (187). The enzyme inhibition, acetylcholinestrase inhibition assay was carried out on the synthesized derivatives. ASJ-11 showed significant acetylcholinestrase inhibition of 96.03% having IC_{50} of 9.1µg/ml. these compounds were prepared because of their pharmaceutical importance. These derivatives show significant antidiabetic, anti-cancer, anti-arthritis etc activities.