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Anticancer activity studies in different cell lines of various organic compounds

Benzimidazole and its derivatives demonstrate pharmacological activities and they also have a significant role as therapeutic agents. For example: there are few drugs containing benzimidazole nucleus showing following biological activity such as fungicidal, bactericidal, analgesic, anticancer and antiviral properties. The 5,6-dimethyl-1-(α -D-ribofuranosyl) benzimidazole ring system as an integral part of the structure of vitamin B12, which is discovered by Bonnett in 1948, is also including benzimidazole nucleus. Here, four new benzimidazolium salts were synthesized and characterized by ^1H NMR, ^{13}C NMR, IR and elemental analysis (Figure 1). Energy values of salts were calculated using the Spartan 10 program. The cytotoxic activities of compounds were determined as testing against the following cell lines: DLD-1, MDA-MB-231, HepG2, Beas-2B, HEK-293T using MTT assay methods for in-vitro cytotoxicity. Cisplatin was used as positive control drug. As a result, all organic compounds exhibited akin to or better results than cisplatin against the tested cell lines, and hence can be considered for further development for cancer therapy. Furthermore, microscopic examination of cells was done using Leica inverted microscopy and Olympus confocal microscope.

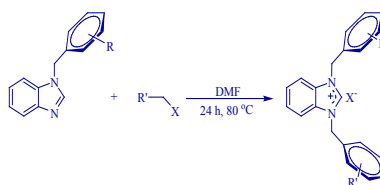


Figure 1: Synthesis of new benzimidazolium salts.

Biography

Senem Akkoç has obtained her Bachelor's Degree from Bülent Ecevit (Zonguldak Karaelmas) University in 2009. She has completed her Master's degree in the synthesis and properties of N-heterocyclic salts at Inonu University in 2012. She has completed her PhD from Erciyes University about *in-vitro* cytotoxic activity of synthesized benzimidazolium salts. She had been in the University of Sydney (Australia) as a Visiting Scholar from 2015 to 2016. She has published more than 30 papers in reputed journals and has been serving as an Editorial Board Member of three journals.

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