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Synthesis of new dehydropeptide mimics involving some heterocyclic rings and their investigation as cytotoxic agents

Atef AbdelMoniem Kalmouch
National Research Centre, Egypt

Co-Authors
H A Soliman & H M Awad
National Research Centre, Egypt

Dehydropeptides are significant constituents of several biologically active peptides. Accordingly, the class compounds present are useful synthetic precursors for assembling biologically active identities, namely, cytotoxic agents. Relative to the main peptide chain, the existence of the SP2 hybridized α-β atoms in the peptide chains limits the conformations of the side chains to either Z or E orientation at the Cβ carbon atom. This decreases the conformational flexibility, which makes the α-β dehyrodropeptide position and the amide backbone structurally suitable for building up some heterocyclic rings. The heterocyclic rings are, consequently, embedded in the peptide chain backbone as additional dehyro-peptidomimetics. Considerable research works towards their synthesis; structural, as well as, biological investigations are consequently, recently, explored. Herein, we will focus upon the synthesis and characterization of some tetrazols and oxadiazoles dehydro-peptidomimetics and their biological evaluation as cytotoxic, namely, anticancer agents against MCF-7 human breast carcinoma cells. The realized preliminary tests revealed that our nine tested compounds demonstrated cytotoxicity which was somewhat dose dependent. Five of them demonstrated high anticancer activity.

Biography

Atef AbdelMoniem Kalmouch has completed his PhD in the Faculty of Science at Zagazig University, Egypt. He is the Head of Peptide Chemistry Department, National Research Centre-Egypt. He has published more than 20 papers in reputed journals and has been serving as an Editorial Board Member of repute journals.

kalmoush@yahoo.com