Halogenated Benzamides: Synthesis and *In Vitro* Study as Potential Cholesteryl Ester Transfer Protein (CETP) Inhibitors

By
Bara'a Sameeh Hasan Al-Nawaiseh

Supervision
Prof. Dr. Reema Abu Khalaf

Al-Zaytoonah University of Jordan, 2019

Abstract

Hyperlipidemia is defined as an increase in the levels of triglycerides and low-density-lipoprotein (LDL), with a decrease in high-density-lipoprotein (HDL) levels. Hyperlipidemia is one of the major risk factors for the progression of cardiac diseases. Cholesteryl ester transfer protein (CETP) facilitates the transfer of cholesteryl esters from HDL to LDL and very-low-density lipoprotein (VLDL) which have proatherogenic properties. Inhibition of this process increases HDL levels and decreases LDL levels.

In this study, four trifluoromethyl-benzamide derivatives **8a**-**8d** were synthesized and identified using ^{1}H-NMR, ^{13}C-NMR and IR. These compounds were exposed to *in vitro* biological evaluation and showed different inhibitory activities against CETP ranging from 36.8-87.2% at the concentration of 10 µM. It was found that structure with three aromatic rings and *ortho*-CF_3 moiety (**8b**) exhibits the best activity with 87.2% inibition and an IC_{50} of 1.2 µM.

Keywords: CETP inhibitors, HDL, Hyperlipidemia, Spectroscopic analysis, Trifluoromethyl benzamides.