Anticancer and α-Chymotrypsin Inhibiting Diterpenes and Triterpenes from *Salvia leriaefolia*

Amjad Hussain1, M. Iqbal Choudhary1,2, Achyut Adhikari1, Bishnu P. Marasini1, Samina A. Sattar1, Atia-Tul-Wahab1, Nusrat Hussain1, Syed A. Majid Ayatollahi3, Atta-ur-Rahman1

1H. E. J. Research Institute of Chemistry, International Center for Chemical and Biological Sciences, University of Karachi, Karachi-75270, Pakistan

2Department of Chemistry, King Saud University, Riyadh, Saudi Arabia

3Dr. Panjwani Center for Molecular Medicine and Drug Research, International Center for Chemical and Biological Sciences, University of Karachi, Karachi-75270, Pakistan

4Phytochemistry Research Center and Department of Pharmacognosy, School of Pharmacy, Shaheed Beheshty University of Medical Sciences, Tehran, Iran.

*Salvia leriaefolia* Benth. is a tall annual plant found in the north-west of Iran exhibiting a variety of biological activities, such as antioxidant, antiplasmodial, antimicrobial, antiinflammatory and cytotoxicity [1].

Salvialeriol (1), an abietane type diterpene, was isolated from *Salvia leriaefolia*, along with four known abietane-type diterpenoids, 6-hydroxysalvinolone (2) and deacetylnemorone (3), cariocal (4), salvialerione (5) as well as two triterpenes, 2-acetoxylupeol (6), lupine-2,3-diol (7), were isolated and identified. Compound 6 was reported as derivative of 7 and this is first report from natural source as well as its detail NMR data has been reported for first time. Compounds 3 and 7 exhibited excellent antiproliferative activity against prostate cancer cell line (PC3) and cervical cancer cell line (HeLa) with IC_{50} value of 6.2 ± 0.1, 2.6 ± 0.1 and 2.8 ± 0.1, 2.7 ± 0.1 μM respectively. While compounds 1, 2 and 6 showed moderate activities. Compounds 1-7 were also tested against α-chymotrypsin enzyme, compound 2 exhibited inhibitory potential against α-chymotrypsin (IC_{50} = 188.8 μM). Kinetic study revealed compound 2 as a competitive inhibitor (K_i = 176.7 μM).

REFERENCE