UNIVERSITI SAINS MALAYSIA

Pusat Pengajian Sains Farmasi
School of Pharmaceutical Sciences

Universiti Sains Malaysia
11800 USM, Pulau Pinang, Malaysia
T : 604 653 2211, 653 2212,
604 653 2161, 653 4580
F : 604 657 0017
L : www.usm.my; www.pha.usm.my



Title: Inhibiting the progress of non-alcoholic fatty liver disease (NAFLD) by targeting adipocytokines and angiogenesis

Raghdaa Hamdan Al Zarzour

Discipline of Pharmacology, School of Pharmaceutical Sciences, Universiti Sains Malaysia, Minden 11800, Penang, Malayasia

Email: raghdaa@usm.my

Abstract

Pharmacological research has witnessed a great interest in the role of adipocytokines and genes as main key players during the progression of non-alcoholic fatty liver disease (NAFLD), and recently, angiogenesis process has been shown to be stimulated in NAFLD, especially during liver fibrosis. We have recently claimed that *phyllanthus niruri* extract has exhibited an inhibitory effect against NAFLD progression. It significantly reduced hepatomegaly and NAFLD score, prevented fibrosis, reduced visceral fat and serum lipid profile, hepatic content of cholesterol, triglyceride and malondialdehyde (MDA), adjusted liver enzymes levels in addition to serum atherogenic ratios, Current study aimed to assess the molecular mechanism of action of this extract on specific genes and adipocytokines which are linked with NAFLD, and to further evaluate its anti angiogenic effect. NAFLD was *induced in Sprague–Dawley rats by high fat diet feeding for eight weeks of. Treatment was applied for four weeks*. The antiangiogenic activity was evaluated by aortic ring assay and by *in vitro* tests. Outcomes of this study confirmed that NAFLD rats which are treated with *phyllanthus niruri*, exhibited

significant rise in serum adiponectin, drop in the serum levels of interlukin 6 (IL-6), tumor necrosis factor-alpha (TNF-α), vaspin, retinol binding protein4 (RBP4), and proganulin compared to non-treated HFD group. Treatment with *phyllanthus niruri* extract exposed a significant down regulation of the hepatic gene expression of (SLC10A2), (PPAR γ) and (Collα1). In parallel, *P. niruri* has shown a potent antiangiogenic activity. Together, these results suggest that adipocytokines and antiangiogesis process could be an effective target for more novel therapeutic choices of NAFLD. We also propose that some medicinal plants such as *phyllanthus niruri* deserve further investigations in this field.

Biography

Raghdaa Hamdan AL Zarzour working as a senior lecture (assistant prof Dr.), discipline of Pharmacology, School of Pharmaceutical Sciences, University Sains Malaysia. Specialization: Phamacology. Research interests:

1- Studying the molecular pathways in the pathophysiology of Non-alcoholic fatty liver disease (NAFLD).
2- *In vivo* & *in vitro* studies for the discovery of novel therapeutic drugs against NAFLD.
3- Extracting medicinal plants to elucidate their antioxidant activities against different metabolic syndrome disorders.
4- Formulating high fat diet for experimental Pharmacology.