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Abstracts

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lanthus atropurpureus Bojer, revealed that its extracts is quite similar to silymarin. Both of them improve the parameters of CCL₄-induced liver injury including serum AST and ALT. Among the extracts tested, root extract showed maximum activity as compared with aerial part extract relative to silymarin.

PL82

Response of germination and seedling growth of, hyssop (*Hyssopus officinalis*) and Marguerite (*Chrysanthemum x superbum*) as medicinal plants to water stress

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In order to study the effects of five levels of water stress (0, -2, -4, -6 and -8 bar) on germination characteristics and seedling growth of two medicinal plants (*Hyssopus officinalis* L. and *Chrysanthemum x superbum* Bergmans ex J.Ingram), two experiments were conducted at physiology laboratory of Faculty of Agriculture Ferdowsi University of Mashhad as a Completely Randomized Design with four replications. The results showed that the effects of different levels of water stress were significant in all of the studied characteristics of two plants. Germination percentage was decreased and mean germination time were increased by increasing in water stress levels and, germination percentage was zero in levels of -6 bar in two types of plants. It is suggested that decrease in seed germination and depression in seedling growth under drought conditions related to limited hydrolysis of food reserves from storage tissues as well as due to impaired translocation of food reserves from storage tissue to developing embryo axis [3]. Root length of Hyssop and Marguerite respectively, were increased and decreased by increasing in water stress levels. Plumule length had a decreasing trend in two studied plants, but amounts of this trend was less in hyssop and the root length/plumule length were increased in each of plants. Many researchs were shown that an increased root/shoot ratio resulting in more efficient water and nutrient uptake [1,2]. Also, dry weight root had increased trend and dry weight plumule had decreasing trend but root dry weight/plumule dry weight was increased in two types of plants. References: 1- Fallahi J et al. (2008) Iranian J Environ Str Agric Sci 1(1): 57 – 67. 2- Gorham J et al. (1999) Plant Soil 89: 15 – 40. 3- Misra N, Dwivedi UN (2004) Plant Sci 166: 1135 – 1142.

PL83

Omididun (corn liquor): an economic solution to xerostomia

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Xerostomia is dry mouth resulting from reduced or absent saliva flow associated with dehydration, use of drugs, various syndromes (Plummer-Vinson syndrome) and side effects of radiotherapy and chemotherapy in cancer treatment. It can affect nutrition and dental as well as psychological health. Omididun is the liquor obtained from fermented ground and sieved maize or sorghum. While the ground wet flour obtained is boiled into a semisolid cereal (Ogi) for breakfast in Nigeria. Lactoperoxidase (LPO) presence was confirmed in *omididun* obtained from four varieties of fermented corn [*Zea mays* Linn. (Poaceae) white and yellow varieties and *Sorghum bicolor* Linn. (Poaceae) white and red varieties] using the principle of LPO decomposition of hydrogen peroxide and the oxidation of colorless 1, 4-phenylenediamine into the purple indophenol. LPO was estimated with a reaction mixture of hydrogen peroxide and potassium iodide solutions, incubated at room temperature to achieve equilibrium and absorbance read at 350nm in a UV spectrophotometer against a blank without *omididun* and procedure repeated for commercially available dry mouth wash and toothpaste. The colour intensity was proportional to the LPO's concentration in the order of yellow corn > white corn > red sorghum > white sorghum. LPO content increases from 3.528 ± 0.451% in white sorghum to 34.713 ± 0.068% in yellow corn. It is proposed that *omididun* could be

used as a mouth rinse or incorporated in tooth paste because of the natural LPO content to treat xerostomia and as well reduce oral bacteria and consequently the acid produced by those bacteria.

PL84

Fungal transformation of pimaradienoic acid and its schistosomicidal activity against *Schistosoma mansoni*

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In the present work, the microbial transformation of pimaradienoic acid (PA, 1) (Figure 1) was performed using submerged shaken liquid culture of *Aspergillus ochraceus* (1.8 x 10⁶ spores/mL). The microorganism was grown by a two-stage fermentation procedure [1]. PA was added as a dimethylsulfoxide solution (0.1 g/L) and incubated for 3 days. The culture was filtered and the aqueous layer was extracted with ethyl acetate to furnish the extract codified as AoPA. Chemical and NMR studies of AoPA allowed us to isolate and to identify two PA derivatives (Figure 1: Compounds 2 and 3). The *in vitro* schistosomicidal activity of these metabolites was performed against male and female *S. mansoni* adult worms [2], and the results denote that PA is very effective with respect to the separation of coupled pairs, mortality, decrease in the motor activity and tegumental alterations. In addition, PA is able to reduce the percentage of eggs number and eggs development. In this context, the schistosomicidal effects of PA indicate that *ent*-pimarane diterpenes could be considered a promising source for discovery of new agents to treat human schistosomiasis.

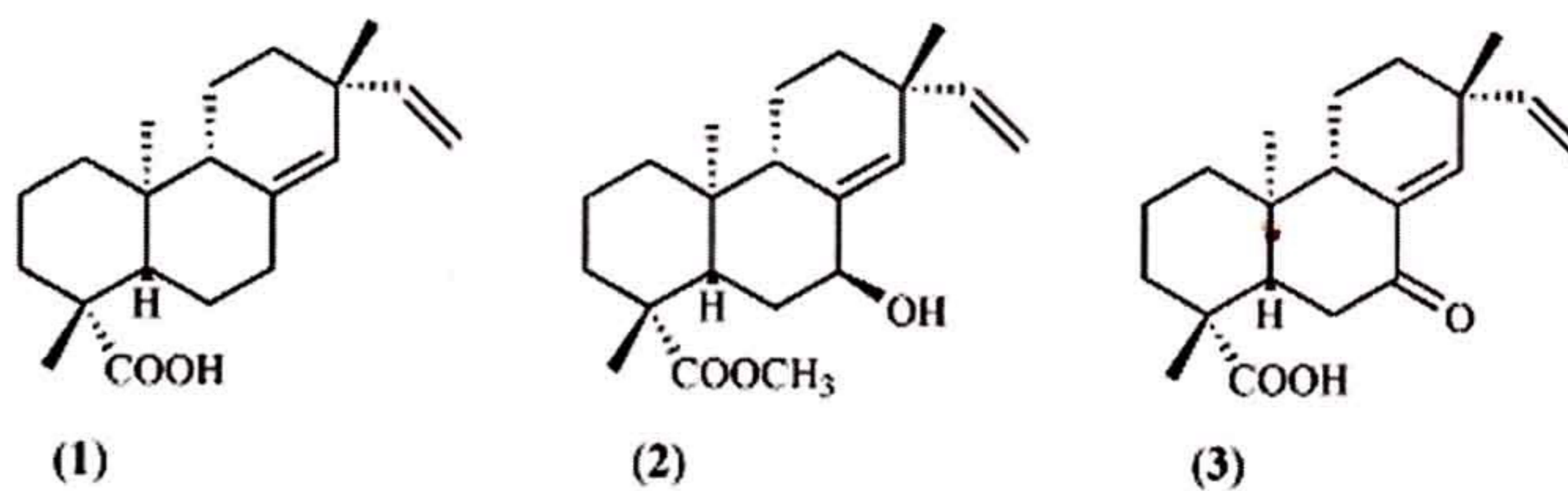


Figure 1: Chemical structures of PA (1) and its derivatives obtained through fermentation for 3 days with *A. ochraceus*.

Acknowledgement: FAPESP (Proc. 2007/54762 – 8) **References:** 1. Bastos DZL et al. (2007) Phytochemistry 68: 834 – 839. 2. Magalhães LG et al. (2010) Parasitol Res 106: 395 – 401.

PL85

Biotransformation of *ent*-8(14),15-pimaradiene and antimicrobial activity of the obtained derivatives against multi-resistant Gram-positive bacteria

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In the present work, the microbial transformation of *ent*-8(14),15-pimaradiene (Figure 1; 1; PI) was performed using submerged shaken liquid culture of *Aspergillus ochraceus* (1.8 x 10⁶ spores/mL). The microorganism was grown by a two-stage fermentation procedure [1]. PI was added as a dimethylsulfoxide solution (0.1 g/L) and incubated for 7 days. The culture was filtered and the aqueous layer was extracted with ethyl acetate to furnish the extract codified as AoPI. Chemical and NMR studies of AoPI allowed us to isolate and to identify four PA derivatives (Figure 1: Compounds 2, 3, 4 and 5). The antimicrobial activity of these metabolites was evaluated against a panel of 14 multi-resistant Gram-positive bacteria. For this purpose, the broth microdilution method was applied and the minimal inhibitory concentration (MIC) values were determined [2]. Diterpene 2 displayed significant inhibitory effect on the growth of these pathogens, showing MIC values very promising [3].