Planta Medica

Journal of Medicinal Plant and Natural Product Research

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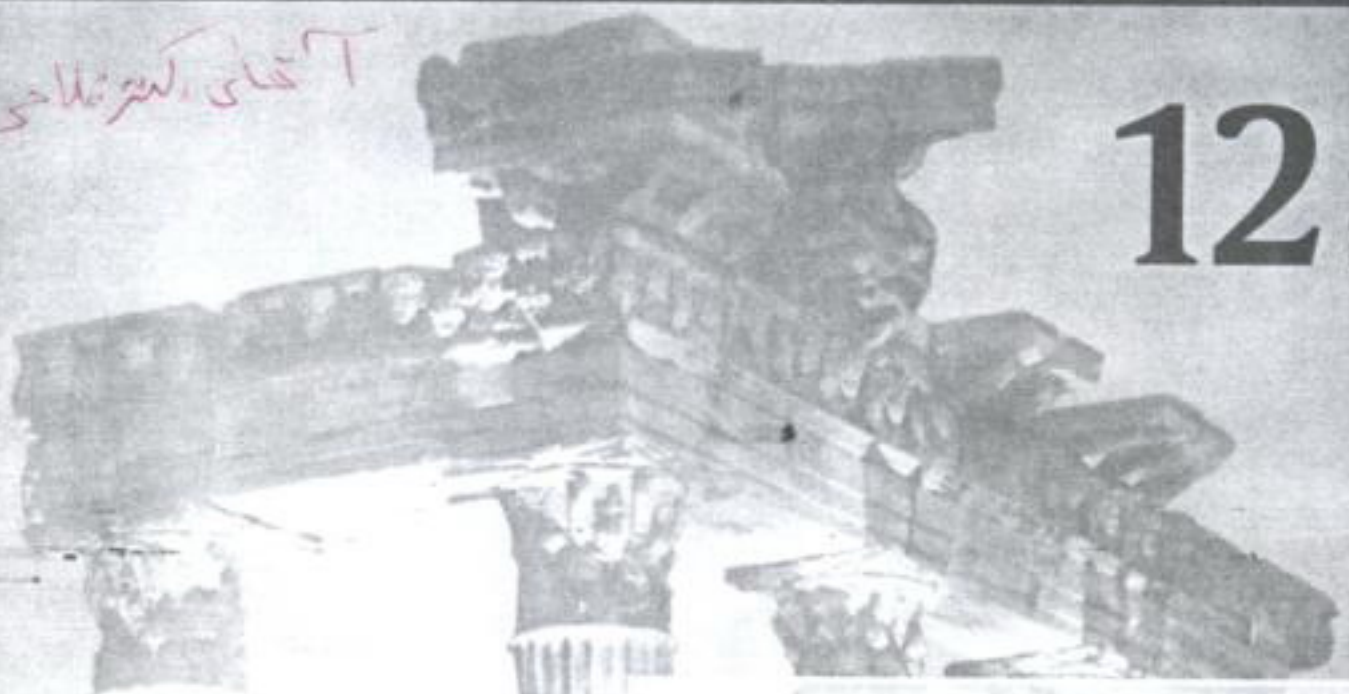
Volume 77
August 2011
Page 1229–1472



Official Organ of the Society for Medicinal Plant and Natural Product Research

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This journal is indexed in Current Contents/Life Sciences, Science Citation Index, MEDLINE, EMBASE and SCOPUS.

59th International Congress and Annual Meeting of the Society for Medicinal Plant and Natural Product Research

4th–9th September 2011, Antalya, Turkey

Abstracts

Chairman and Issue Editor:
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PD11 Effect of sowing date and seeding levels on quantitative and qualitative yield of chamomile (*Matricaria recutita*)

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In order to study the effect of sowing date and seeding levels on quantitative and qualitative yield of chamomile (*Matricaria recutita*) L., an experiment was conducted. The experimental design was split-plot in the basic of randomized complete blocked design with three replications. Main plots consisted of three sowing dates (6 Nov, 5 Mar, and 4 Apr) and sub-plots included three seeding levels (0.2, 0.4 and 0.8 g/m^2). On the basis of the results, highest plant (47.4 cm), the most number of plants in plot (135.4 plants), the most yield of fresh and dry flower yield (749.1 and 175.1 g/m2) was obtained from the plants were sown on 6 of Nov but the most percentage of essential oil and chamazulene (0.59 and 5.62 percent respectively) and essential oil yield (0.79 g/m^2) was obtained from the plants were sown on 5 of Mar. On the basis of the results of their interaction, highest plant (49.7 cm), the most yield of fresh and dry flower yield (810 and 198.2 g/m^2) was obtained from the plots were sown on 6 of Nov with 0.8 g/m^2 but the most essential oil and chamazulene content (0.63 and 5.9 w/w percent respectively) and essential oil yield (0.97 g/m^2) was obtained from the plots were sown on 5 of Mar with 0.4 g/m^2. According to the results, the most suitable sowing date and seeding level in Mashhad condition is 5 of Mar with 0.4 g/m^2 seeds. References: 1. Letchamo W, Marquard R (1993) Acta Hort 331: 357–361. 2. Zalecki R (1972) Herba Polonica 910: 70–88.

PD12 Effect of GA3 and KNO_3 treatments on improving *Nepeta crispa* seeds germination

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Nepeta crispa Willd. is an aromatic endemic plant of Iran. This plant with the common local name Mofarrah (because of its sweet odor) has been of great interest to Iranian traditional medicine. Infusion obtained from the aerial parts of *N. crispa* was used traditionally as sedative, relaxant, carminative, restorative tonic for nervous and respiratory disorders. Therefore, study of different characteristics of this plant, including propagation and increasing is essential. The effect of GA3 (gibberellic acid) and KNO_3 (potassium nitrate) was tested for seed germination of *N. crispa* by measuring the germination percentages and rate also dry and fresh weight under pre- soaking seeds with concentrations 50, 100, 200, 300 and 500 ppm of GA3 at 48 h and 0/1%, 0/2% and 0/4% of KNO_3 at 72 h, along with control. The results showed that the highest germination percentage and rate were obtained with seeds which were pre-soaked 300 ppm GA3. Also the highest dry and fresh weight in seeds which were obtained with seeds was pre- soaked 300ppm GA3. But the lowest germination percentage and rate were provided by pre- soaking seeds in 500 ppm of GA3. Acknowledgement: *A.Eskandary, Y.Ahmadi Moghadam, M.Avizegosh*

PD13 Evaluation the effects of harvesting management and drying methods on chemical indices of barberry

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Seedless Barberry (*Berberis vulgaris* L.) is a medicinal shrub that all parts of the plant used for many diseases treatment [5]. Since the managemental procedure are critical for quality of medicinal products, the aim of this research was determininig the best harvesting and drying methods for seedless barberry. This research was conducted as factorial experiment based on Complete Randomized Block Design with three replications in southern Khorassan province, Iran, in 2010. Exprimental factors included picking off method (branch and berry picking) and drying method (sun drying and shade drying). The chractestics such as pH, soluble solids (Brix) and acidity were determined in barberry sampels, also the amount of anthocyanin was defined by Timberlak and Bridle method [6]. Maturity index (MI) defined as brix to acidity ratio. Results showed that all chractestics were superior in sun drying and berry picking off methods tretments, except pH (Table 1). It has been reported that the amounts of anthocyanin was reduced at low light level [2], whereas the others reported that increasing light reduced it [1]. This differents related to plant, variety, location, season and growth phase [3]. Anthocyanines are more stable at high pH [4]. Since in sun drying and berry picking treatmetns, amounts of acidity and anthocyanin were increased and pH was decreased, it seems that this pigments in seedless barberry could maintain with applying these treatments. Our results indicated that sun drying and berry picking off methods were more effective to improve qualitative proprrties of seedless barberry. References: 1- Bergqvist J et al. (2001) J Enology and Viticulture 52: 1–7. 2- Dokoozlian N K, Kliewer WM (1996) Soc.Hort Sci 121: 869–874. 3- Jyothi A N et al. (2005) Int J Food Prop 8: 221–232. 4- Inami O et al. (1996) J Agric Food Chem 44: 3090–3096. 5- Shamsa F et al. (1999) J Ethnopharmacol 64: 161–166. 6- Timberlake CF, Bridle P (1982) Distribution of anthocyanins in food plant. Anthocyanins as food colors. London: Academic Press.

PD14 Selecting superior variety of *Atractylodes lancea* through photosynthetic characters and chlorophyll fluorescence parameters

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Atractylodes lancea (Thunb.) DC., which had been highly appreciated in medical literature of past dynasties, is a kind of authentic herb, and has a long history of medicinal in China. The selection of superior variety is an important measure to cultivate the *Atractylodes lancea* Wild *Atractylodes lancea* grown in Maoshan mountainous area, Jiangsu province, China, was divided into four types according to leaf shapes: incised leaf-type, ovate leaf-type, long lanceolate leaf-type, and short lanceolate leaf-type. The photosynthetic activity and chlorophyll fluorescence parameter of four types of *Atractylodes lancea* were measured. There were significant differences in photosynthetic activity among the four types of *Atractylodes lancea*. The net photosynthetic rate of incised leaf-type was much higher than that of other types. Substantial differences in the overall performance of the photosynthetic apparatus also existed among the four types of *Atractylodes lancea*. The capacity to regenerate the photosynthetic apparatus, photochemical quenching capacity and PS II electron transport activity of the incised leaf-type *Atractylodes lancea* were greater than those of other types, and the capture efficiency of light energy of the short lanceolate leaf-type was the lowest among the four types of *Atractylodes lancea*. This suggests that the growth rate of the incised leaf-type *Atractylodes lancea* was greater than that of other types in growing environment. It was consistent with the measurers to the growth of stem and leaves in the field [1]. The incised leaf-type *Atractylodes lancea* can be selected as the superior variety. Acknowledgement: *The authors gratefully acknowledge the financial support from the High-tech Agriculture Research Program of Jiangsu Province, China (No. BG2006322).* References: Sang X (2008) J Anhui Agri Sci 36: 7726–7727.

PD15 Effect of plant growth regulators on the growth of *Orychophragmus violaceus* plantlets *in vitro*

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Orychophragmus violaceus (L.) O.E.Schulz, which belongs to *Orychophragmus* Bunge (Cruciferae), is an annual or biennial wild plant. Much attention has been paid to it from researchers for its adaptability to karst and great economic worth and medical value including anticancer role (contaning anticancer substance glucoraphanin in seeds) [1,2]. High efficient propagation is necessary for mass production of *Orychophragmus violaceus*. The successive information of plantlets *in vitro* was obtained via using image analysis technique. The effect of plant growth regulators on the growth of *Orychophragmus violaceus* plantlet *in vitro* was studied. Nine treatments with different additions of 6-benzyl aminopurine (6-BA) and naphthalene acetic (NAA) supplemented to MS medium were carried out. The biomass of plantlets *in vitro* in sterilized condition was acquired via image analysis technique. There is a significant correlation