

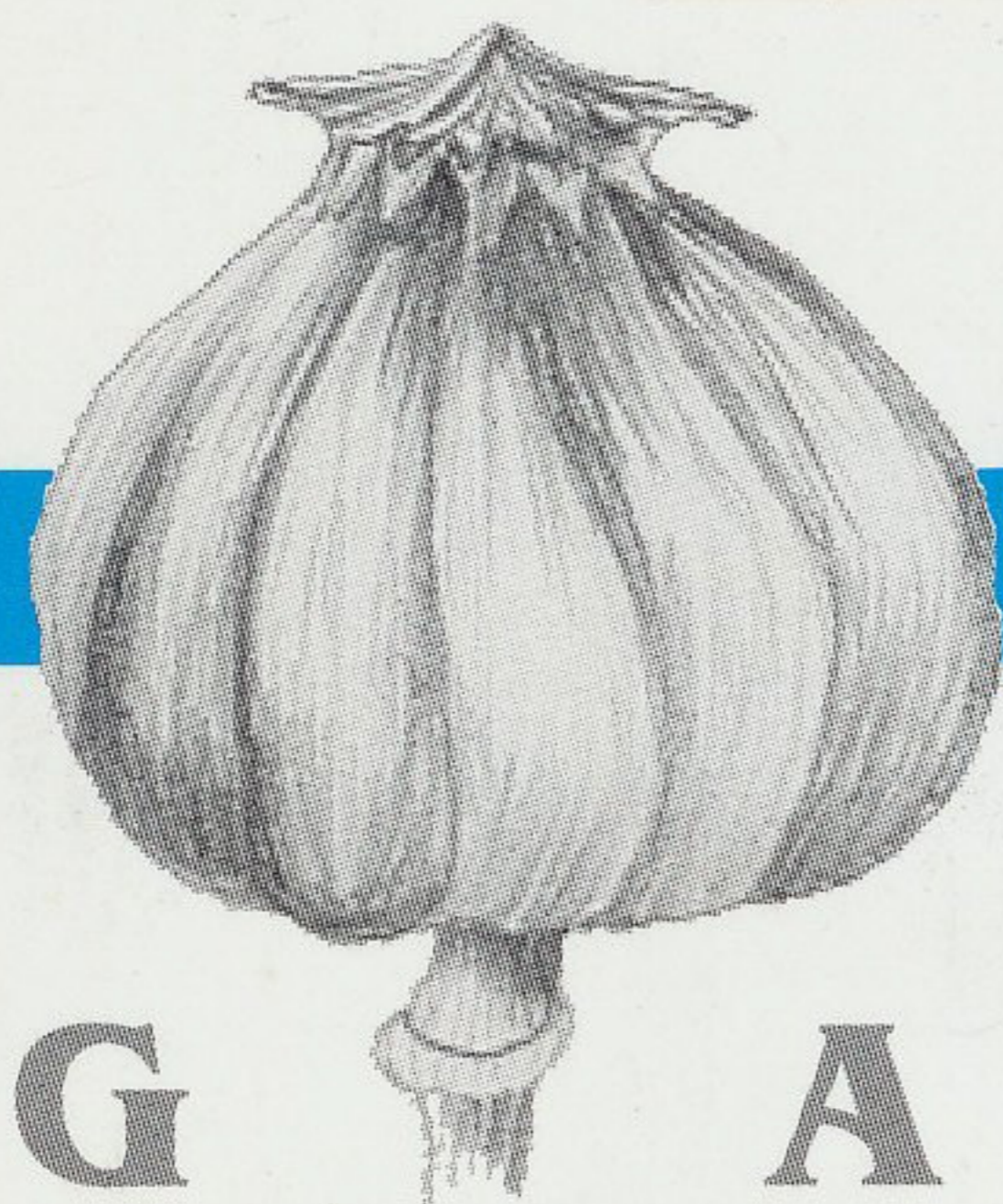
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# BOOK OF ABSTRACTS AND FINAL PROGRAM

**FASCINATION  
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## Constituents of sexual and facultatively apomictic St. John's wort plants (*Hypericum perforatum* L.) with different ploidy level

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St. John's wort is a medicinal crop plant that reproduces primarily by apomixis. Plant breeders are interested in combining important traits – e. g. wilt (*Colletotrichum gleosporioides*) resistance and the content of pharmaceutically interesting substances - from different genotypes by crossing. However, sexual plants are needed for crossing experiments. A collection of 127 accessions was analysed by flow cytometric seed screen (FCSS) to assess their reproduction pathways and ploidy level and to select sexual lines. Some shoots of each plant were isolated by bags for selfing. Seeds of the self-fertilised plants were investigated with the flow cytometer PLOIDY Analyzer CAII (Partec) according to Matzk et al. (1).

Most of the plants were tetraploid facultative apomicts. Plants with sexual reproduction were found only in four accessions. All plants with sexual reproduction were diploid. The diploid sexual plants were cultivated in field trials together with the tetraploid facultatively apomictic cultivar 'Topaz'. The content of the following constituents was determined in dried flowering upper parts of shoots: hypericin, pseudohypericin, hyperforin, adhyperforin, quercetin, quercitrin, isoquercitrin, biapigenin, rutin, hyperosid. The constituents pattern was the same on both ploidy levels, but the content of some substances differed significantly.

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*References:* 1. Matzk, F. (2001) Plant J 26: 275-282.

## Effects of irrigation regimes and plant density on yield, yield components, morphological and quality characteristics of Isabgol (*Plantago ovata*)

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To study the effects of irrigation regimes and plant density on yield, yield components, morphological and quality characteristics of Isabgol, a research was conducted at research field station, college of agriculture Ferdowsi university of Mashhad, during the years of 2000 and 2001. A split plot experiment based on a complete randomized block design with three replications was used. The experimental treatments comprised all combinations of four irrigation, 7, 14, 21 and 28 interval days allocated in the main plots and four plant densities, 8, 10, 14 and 20 in the first, and 20, 60, 100 and 140 plants/m<sup>2</sup>, in the second year, allocated in sub plots. In quality experiment, only net effects of irrigation regimes on three quality factors (swelling factor, amount of mucilage and swelling amount per each gram mucilage, was studied by a randomized complete block design with three replications. Results indicated that all irrigation regimes had a significant effect on seed yield and some yield components and decreasing the irrigation intervals resulted to increase these characters. The effect of plant density on these characters was not so obvious in the first year, but the highest seed yield was obtained in the highest density (140 plants/m<sup>2</sup>) in the second year. Results obtained from quality experiment were different in the two years of study, but the effect of irrigation regimes on amount of mucilage was not significant in both years. The highest amount of swelling factor and swelling amount per each gram mucilage was obtained in 14 days interval, in both years of this research.

*References:* 1. Ainechi, Y. (1986), Iranian Medicinal plants, Tehran University, Pub. Tehran, Iran. 2. Chadho, K. L. and Rajender, G. (1995), Advances in Horticulture Medicinal and Aromatic Plants, Vol. 11, Maldorta, Pub. India. 3. Chandler, C. 1954, Contribution from Boyce Thompson Inst 174: 195-505. 4. Dinda, K. and L.E.Craker. 1998. Growers Guide to Medicinal plants. HSMP Press. Pub. Amherst, 5. Ebrahimzadeh, H. M. Mirmasumi and M. Fakhre. Tabatabai, 1996, Journal of Iranian Agricultural Sciences 3: 87-96. 6. Ganpat, S., Ishwar, S. and Bahti, D.S., 1992, Indian Journal of Agronomy 37: 880-881.