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Gynogenesis Induction Studies in Wild Chive (*Allium schoenoprasum* L.)

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Aim of the study:*A. schoenoprasum* breeding studies may benefit from gynogenesis-based doubled haploid technology. This technology allows development of completely homozygous lines in one generation. We are investigating applicability of DH technique in the development of new DH lines from *A. schoenoprasum* materials maintained in our *Allium* improvement program.

Material and Methods: Unopened flower buds (several days before anthesis stage) were collected from donor *A. schoenoprasum* lines that were maintained in an unheated greenhouse between mid-April and mid-May. Surface sterilized flower buds were cultured in various BDS- and MS-based induction media to obtain gynogenic regenerants. Responsive buds were detected after about three months of culture. Buds with emerging gynogenic and somatic shoots were sub-cultured in elongation medium. Gynogenic and somatic shoots developing from the buds were evaluated for their ploidy levels and transferred to *in vivo* for further growth and observation. Regenerants and seedlings of donor plants were placed in pots filled with a soilless mix and placed in a greenhouse.

Results: Results in this study shows that *A. schoenoprasum* materials are suited for gynogenesis response and clonal propagation. Gynogenic plant were produced in all types of induction media with variable efficiency levels. However, somatic shoot regeneration was poor and development of a somatic shoot regeneration system in *A. schoenoprasum* may require a more detailed investigation. According to nuclear DNA content analysis with flow cytometry, the majority of the gynogenic plants produced were diploid and only three of them were haploid. All somatic regenerants obtained were diploid. Gynogenic and somatic plants transferred to a greenhouse showed normal development similar to donor plants.

Acknowledgements: This research was supported by PAU BIYOM.

Keywords: *Allium schoenoprasum*, DH, Gynogenesis, Flow cytometry.