

Results: Values of EC₁₀ and EC₅₀ were 0.8 and 5.4 mg/dm³ for MCPA and 0.7 and 10.4 mg/dm³ for chloridazon, respectively. When chloridazon was applied at EC₅₀ value, antagonistic interaction between MCPA and chloridazon was observed, irrespective of MCPA concentration. However, antagonism, synergism and as well as addition revealed all other binary mixtures of tested substances.

Conclusions: The comparison of EC₅₀ values indicates that chloridazon was less toxic to duckweed than MCPA. Both herbicides showed interaction. Chloridazon reduced inhibitory effect of MCPA on growth of *Lemna minor*.

References

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Acknowledgments: This work was supported by the project No. BW/1420-5-0113-7, University of Gdańsk.

Effect of combined drought and heat stress on heat shock proteins in wheat varieties

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Introduction: The response of crop plants exposed on drought or heat shock is related to decrease in the synthesis of normal proteins, accompanied by increased translation of heat shock proteins (HSPs). Though drought and heat stress have been studied individually, little is know about their combined effect on plants.

Methods: The wheat (*Triticum aestivum* L.) varieties (Katya- tolerant, Sadovo or Mladka-susceptible) were potted in soil. Eight-day-old plants were exposed to withdrawing water for seven days. Heat shock was realized in growth chamber at 40 °C for 6h. A combination of drought and heat shock was performed by subjecting drought-stressed plants to heat shock treatment. Expression of HSPs in the first leaf of wheat varieties was analyzed by SDS electrophoresis and immunoblotting. Polyclonal antibodies against HSP20, HSP60, HSP110 and monoclonal antibodies against HSP70 were used to distinguish the mentioned HSPs.

Results: The leaf relative water content (RWC), which indicated the level of plant dehydration decreased significantly (34 %) under drought stressed conditions. The electrolyte leakage of ions (EL), representing the level of the cell membrane stability increased markedly (68 %), especially under combination of drought and heat. Maximum EL was observed in drought susceptible varieties Sadovo and Mladka. Drought and heat shock combination in the wheat plants resulted in the induction of specific HSPs.

Conclusions: Our results demonstrate that the response of the wheat plants to a combination of drought and heat stress is different from the response of plants to each of these stresses applied separately. Induction of synergetic effect on HSP expression in case of combination between drought and heat was discussed in the case of two contrasting wheat varieties.

Acknowledgements: This study was supported by grants from the Ministry of Education and Science of the Republic of Bulgaria (projects CC 1503), and from Swiss National Science Foundation, SCOPES (project DILPA).