



Abstract Book



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ABSTRACT BOOK

Cover photo: The insect on the ISCE logo is a moth, a young female *Erannis bajaria* (Geometridae), in calling posture, emitting her pheromone [(3Z,6Z,9Z)-3,6,9-octadecatriene and (3Z,6Z,9Z)-3,6,9-nonadecatriene, G. Szócs, W. Francke et al., unpublished] (photo L.Z. Nagy)

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Temperature and CO₂ concentration: effects on soybean metabolism and implications on *Anticarsia gemmatalis* biological aspects

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Climatic changes may alter the metabolism of plants, as possible insect-plant interaction. Experiments were carried out in growth chambers at constant temperatures (25 ° C, 28 ° C, 31 ° C and 34 ° C) and CO₂ (≈ 380ppm and 456 ppm) to estimate C: N ratio and flavonoid concentrations in BRS 359RR soybean leaves. The effect of those environments parameter on biological aspects of *Anticarsia gemmatalis* was also evaluated at elevated CO₂ (ECO₂, 456 ppm). Contents of C and N were estimated by GC and flavonoids by HPLC. The ratio of C: N increased with temperatures and CO₂; dropping in plants maintained at 34° C, in both CO₂ concentrations. Highest concentrations of isoflavones malonyl daidzin and malonyl genistin were detected on the leave of soybean grown at 25 ° C, under ECO₂, but their content reduced as the temperature increased. Higher mortality of *A. gemmatalis* occurred at 34 ° C and ECO₂. This parameter was strongly related to C, as well as genistein and daidzein conjugates contents. Insect-mass was lower and the female laid fewer eggs, but lifetime span was shorter at 34 ° C. We discuss that dropping of isoflavonoid concentration and the possible alterations in the content of primary and secondary metabolites caused by CO₂ and temperature increase may provide a better performance to *A. gemmatalis* development in soybean field, but not before gradual adaptation of the insect to the new temperature conditions.

Keywords: C: N ratio, isoflavonoid, biological parameters, velvetbean caterpillar

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