Phytohormone response comparison between two soybean varieties under *Anticarsia gemmatalis* herbivory

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Soybean plants are under several biotic stresses like defoliation by pests that dramatically reduce the production crop as *Anticarsia gemmatalis* larvaes. Physiologic and biochemical studies on insect-plant interaction are essential to determine the defense mechanisms in resistant varieties. This work aimed to compare the phytohormone response of two soybean genotypes exposed to defoliation by *A. gemmatalis*. Mortality tests of *A. gemmatalis* were evaluated daily after feeding larvae with soybean leaves from cultivars IAC PL1 and IAC 19. Subsequently, plants of the IAC PL1 and IAC 19 cultivars were exposed to larvae attack for 12h. Controls were attack-free leaves. Methanolic plant extracts were analyzed using Liquid Chromatography couple to Triple Quadruple tandem mass spectrometry. Phytohormones Zeatin, Ethylene-ACC, ABA, SA, JA were quantified. The IAC PL1 and IAC 19 cultivars induced larvae mortality of 60.3% and 28.1%, respectively. The basal level between IAC PL1 and IAC 19 was different for phytohormones ABA (7129.5±144.2ng/g; 16569.1±1911.2ng/g respectively) and SA (227.9±0.5ng/g; 1220.2±327.2ng/g respectively). The major ABA and SA concentrations were observed in IAC 19, which did not increase by larvae damage. Additionally, the basal level of the phytohormones Zeatin, ethylene-ACC and JA were higher in IAC PL1 (680.3±85.7ng/g; 70312.1±218.1ng/g; 9303.5±2643.5ng/g respectively), than IAC 19 (603.4±121.9 ng/g; 31385.8± 3248.4 ng/g; 6013.7± 2079.5 ng/g respectively). These phytohormones values were increased by larvae damage in both cultivars (IAC PL1 792.1±19.8ng/g; 82969.3±3969.9ng/g; 12493.7±2925.4ng/g and IAC 19 878.4±16.5ng/g; 41918.4±2469.2ng/g; 7234.9±2044.3ng/g respectively). These results were consistent with the mortality tests, where the IAC PL1 was more effective against herbivory. The IAC PL1 cultivar has the highest mortality effect and phytohormone response as well. The mass spectrometry-based method was efficient in quantifying phytohormones from soybean leaves.

Key words: Hormones, mortality, soybean.

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