

Distribution and Variations of Three 1,4-Benzoxazin-3-ones in Maize Induced by the Asian Corn Borer, *Ostrinia furnacalis* (Guenée)

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Contents of three 1,4-benzoxazin-3-ones in tissue samples from different parts (young leaf, second leaf, old leaf, stem and root) of young maize plants of 4-leaves stage, fed by the third instar larvae of the Asian corn borer, *Ostrinia furnacalis* (Guenée), were analyzed by high-performance liquid chromatography-mass spectroscopy (HPLC-MS). Samples were taken immediately (set A) or 48 h (set B) after larvae had fed on the second leaf for 48 h. The three 1,4-benzoxazin-3-ones investigated in our experiments were 2,4-dihydroxy-7-methoxy-1,4(2*H*)-benzoxazin-3-one (DIMBOA), 2,4-dihydroxy-1,4(2*H*)-benzoxazin-3-one (DIBOA) and 2-hydroxy-7-methoxy-1,4(2*H*)-benzoxazin-3-one (HMBOA). In samples of set A, the levels of DIMBOA and HMBOA were significantly lifted in the old leaf (L3) and young leaf (L1), respectively, while amounts of these two chemicals in other plant parts were not significantly different between larvae-fed plants and intact plants. Concentrations of DIBOA in each plant part remained unchanged. In samples of set B, no concentration differences for any of these three 1,4-benzoxazin-3-ones between larvae-fed plants and controls were observed in any plant part. The feeding of the Asian corn borer seems to have limited effects on induction of these three 1,4-benzoxazin-3-ones in young maize plants of the variety investigated.

Key words: 1,4-Benzoxazin-3-ones, *Ostrinia furnacalis*, Maize