Glycoproteins from Russian Wheat Aphid Infested Wheat Induce Defence Responses

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Elicitors are molecules which can induce the activation of plant defence responses. Elicitor activity of intercellular wash fluid from Russian wheat aphid, *Diuraphis noxia* (Mordvilko) infested resistant (cv Tugela DN), and susceptible (cv Tugela), wheat (*Triticum aestivum* L.), was investigated. Known Russian wheat aphid resistance related responses such as peroxidase and β-1,3-glucanase activities were used as parameters of elicitor activity. The intercellular wash fluid from infested resistant plants contains high elicitor activity while that from infested susceptible plants contains no or very little elicitor activity. After applying C-18 reverse phase and concanavalin A Sepharose chromatography, elicitor active glycoproteins were isolated from the intercellular wash fluid of Russian wheat aphid infested resistant wheat. The elicitor-active glycoproteins separated into three polypeptides during sodium dodecyl sulfate-polyacrylamide gel electrophoresis. The isolated glycoproteins elicited peroxidase activity to higher levels in resistant than in susceptible cultivars. It was evident that the glycoproteins were probably a general elicitor of plant origin. Information gained from these studies is valuable for the development of plant activators to enhance the defence responses of plants.