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## Fight against biotic and abiotic stress in the plant, or new salts based on the anion of the immunity inductor and the cation with anti-stress properties

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Systemic Acquired Resistance (SAR) induction is a very promising method of fighting against viral plant diseases. Using chemical SAR elicitors to trigger natural plant immunity has been proved on many plant/pathogen models. However use of those compounds are burdened by their phytotoxic impact on plant. Fortunately, SAR inducers can be modified into ionic form and combined with protective counterions into bifunctional salts. Some cations like cholinium or betainium and polyamines increase the tolerance of plants to adverse environmental factors. High biological efficiency of the elicitors combined with protective properties in one chemical compound may be an interesting possibility to show a new concept of design of plant protection agents. We have synthesized new salts (ionic liquids) composed of the anion of plant resistance inducers and betainium, cholinium cations and polyamines in cationic forms. Biological properties of obtained salts were successfully determined in the field of SAR induction efficacy by monitoring inhibition of the viral infection on tobacco (*Nicotiana Tabacum* var. Xanthi) plants infected by TMV virus. Also phytotoxicity assessment was performed on tobacco *N. tabacum* var *Xanthi* plants (by spraying) and *Agrimonia eupatoria* (sprouting efficacy). Obtained results show that the presence of betainium and cholinium cations and polyamines in cationic forms decreased the phytotoxic effect of SAR inducers compounds on tobacco plants. Moreover modification of elicitors in presented way has not changed the SAR-inducing properties of such inducers as: 2,6-dichloroisonicotinic acid, 7-carboxybenzo[1,2,3]thiadiazole acid and salicylic acid.

### Biography

I am a PhD student at the Adam Mickiewicz University in Poznań in Poland. For over 5 years I have been synthesized and examined compounds which have plant resistance inducing properties. In my research, I focus on chemical modifications of immunity inducers and check their impact on the effectiveness in preventing plant diseases. For two years, I gained within my research grant PRELUDE lead the research on the influence of the cation on reducing abiotic stresses in plants.

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