



**International Symposium
Intracellular Signalling in Plant and Animal Systems**

PROGRAMME AND ABSTRACTS



Kyiv, Ukraine, 9–14 September, 2001

OLIGOSACCHARINS INTRACELLULAR SIGNALLING MOLECULES: ELICITING AND PROTECTIVE QUALITIES

Yu. Gorbatenko, L.L. Volkova, L.N. Ignatjuk

Biotechnology Laboratory NAS and Ministry of Education & Sciences of Ukraine
E-mail: igbi@kspu.kherson.ua

In the plants oligosaccharins (OS) obviously play the role of molecules-mediators in the process of intercellular communication, stimulating the growth and development, the survival under the unenviromental conditions. They can control the immune functions of plants, processes of their growth and differentiation. Besides, OS stimulate and regulate the immune status of plant tissues. There are five groups of biologically active OS derived from fungal and plant cell wall, chitin, mammals milk (obtained in Nesmeyanov Institute of Element Organic Compounds RAS) or by chemical synthesis: OS beta-glucan, oligomeric chitosan, lipooligosaccharides, pectin and xyloglucan OS. The main distinctive feature of OS is their highest biological activity under the lowest concentrations (8-9 pM). They induce in plants the number of protective reactions against phytopathogens: the formation of phytoalexines inhibition of proteinase, beta-glucanase, chitinase and also the synthesis of callosa and lignin. The biological activity of some OS, obtained from female milk, and their influens on growth and development of tomato (*Lycopersicon esculntum* Mill., cv. Novichok) and winter wheat (*Triticum aestivum* L., cv. Khersonskaya 86) seedlings as well as the OS interactions with auxine have been studied. OS are carable both to stimulate and inhibit growth seedlings. Tomato seedlings are more sensible to the treatment by solutions of OS than wheat. An analysis of the OS interactions with auxin in bioassay has revealed the synergy of the effect of these substances on the growth reaction of a cucumber hypocotils (*Cucumis sativa* L., cv. Parad) at the optimal concentration of 9 pM.