

In most cases, we associate plant protection products with poisonous chemicals, the use of which is subject to many precautions. They often harm not only the organism against which they are used, but also other organisms and the environment. What if we used something subtler, a substance that occurs naturally in plants, as a protection measure? A substance that, apart from being easy to apply, also has a pleasant smell. Perhaps such a compound is β -cyclocitral, which is a volatile molecule with a pleasant floral scent. Research conducted on this compound by various groups of scientists has shown its positive effect in the case of drought and light stress. Moreover, it turns out that it also stimulates root growth. The mechanism of its action is related to the neutralization of free radicals, thanks to which the plant can cope better with a stressful situation. And what else for a plant is an attack of a pathogen other than a stressful situation? Our preliminary studies show that when flax is infected with the fungal pathogen *Fusarium*, the use of β -cyclocitral can help the plant overcome the infection. However, in order to be able to use this compound in plant protection, detailed studies on the mechanism of its action are required. In contact with the pathogen, the plant activates various mechanisms aimed at either eliminating the pest or at least limiting its development in the plant. As part of the project, we will try to understand all possible immune mechanisms in which β -cyclocitral is involved. We will also check whether this molecule can perform a signal function between plants, i.e. whether it can inform plants growing in the vicinity of the attacked plant about the danger they are in, thanks to which they will be able to prepare for a confrontation with the threat. Finally, we will check whether it is possible to use β -cyclocitral as a means of protecting flax against *Fusarium* infection. The search for natural, alternative substances for the hitherto used plant protection products is a must. We often hear about the damage caused by improperly used plant protection products by farmers / breeders (death of pollinators, groundwater poisoning), so the use of natural substances will minimize the damage resulting from human error, and at the same time improve the yield. We expect that the results of our research will reveal the complete function of β -cyclocitral in a plant at the time of an attack by a pathogen and may contribute to the fact that in the future, instead of using substances harmful to humans and the environment, we will protect crops in a more fragrant way.