

AGRICULTURAL ALLELOPATHY AS A BASIS FOR ALTERNATIVE FARMING

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Allelopathy in agrocenoses is an integral biotic process, caused not only by excretions of living plants and their residues but also by metabolites of microorganisms. It constitutes an ecological factor regulating functioning of agrocenoses (dynamics, allelopahic regime, productivity etc.). The simultaneous input of plant and microbial metabolites into the environment and their interrelations during the whole ontogenesis of plants evidence about complex allelopathic action of separate constituents of consortia determinants and eligibility of their referring to as a direct allelopathy.

Such an approach and the results obtained from the studies of allelopathic interactions and aftereffects of aromatic plants in agrophytocenoses present the evidence about the huge ecological importance of exometabolites of biota and the necessity of their complex studies for the development of scientific bases of crop breeding: the selection of cultivars with low content of autotoxic allelochemicals, designing of crop rotation, reducing of soil sickness, selection of region for a certain aromatic crop cultivation etc.

The biologisation of modern farming based on ecological principles is the important direction for agrarians, scientists, and industry workers. The scientifically grounded complex ecological approach would be helpful in solving important urgent theoretical and practical problems: maintenance of soil fertility, biological protection of crops, conservation of biodiversity, agrocenoses stability, enrichment of soil with beneficial microflora and inhibition of phytopathogens.

The new scientifically grounded field of agricultural allelopahy, thus, presents the bases for alternative farming. The main ways of practical implementation of this scientific branch are the following: selection and breeding of crop cultivars with definite allelopathic characteristics, development of ways of management of autotoxic post-harvest residues, designing of crop rotations out of allelopathically compatible crops including leguminous crops enriching soil with nitrogen and crops with phytosanitary properties, management of soil microbiota by introducing of useful microorganisms and suppression of pathogenic ones.