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DEVELOPMENT OF BACTERIAL-BASED BIOFORMULATES FOR AGROECOLOGICAL PRACTICES IN PERIURBAN HORTICULTURE SOILS

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In Moreno district (Buenos Aires Metropolitan Area), periurban horticultural practices are widely spread since they represent the unique economic support for low income families. As a consequence of intensive horticultural activity together with the uncontrolled use of agrochemicals, a clear perturbation in the native microbial community composition was detected. Since 2021, the issuance of an Ordinance 6422/2020 prohibits the use of phytosanitary products, urging the implementation of agroecological practices. In this way, the aim of this work was to study mixed culture behaviour based on native pesticide resistant bacteria to develop bioformulates to be applied as biofertilisers on these Moreno perturbed soils. *Sphingobium yanoikuyae* SP-3, *Pseudomonas migulae* S1-2, *Leucobacter aridicollis* RP7, *Bacillus toyonensis* Y13b, *Bacillus megaterium* P13b2 and *Bacillus safensis* Y8a are native bacteria from the horticultural area of Cuartel V (Moreno) and in previous studies they proved to produce the auxin indole-3- acetic acid (IAA), siderophores and solubilise mineral phosphates immobilized in soils. Growth kinetics of the synthetic consortium was evaluated in batch mixed cultures on nutrient broth at 32 °C during 24 h. Viable cell counts (CFU/mL) for each strain and total biomass (OD600nm) were estimated, denoting the highest growth rate for *L. aridicollis* RP7 with lower values for *B. toyonensis* Y13b and *B. megaterium* P13b2. In addition, the antibiotic resistance pattern of these strains was checked using the traditional Kirby-Bauer disk diffusion susceptibility test, resulting in their sensitivity to the vast majority of commercial antimicrobial agents. This test provided relevant information, since additionally to being available for human manipulation, these strains are environmentally safe enough to be applied in soils in relation to future bioformulations. Taking into account the prevalence of *L. aridicollis* RP7, *B. toyonensis* Y13b and *B. megaterium* P13b2 in the coculture, next step consists on apply this developed bioformulate on *Lactuca sativa* seedlings to explore their potential as biofertilizers.

Palabras clave: soil quality restoration- biofertilizers- synthetic consortia