Evaluation of the biocidal effect of some plant extracts against *Pseudomonas aeruginosa* and selected microorganisms promoting plant growth (PGPM)

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In agricultural practice, there is a need to disseminate new solutions in plant protection, while maintaining production results, and preferably with their improvement. Moreover, reducing the use of chemicals is a process that will require an increasingly well-thought-out selection of preparations. The aim of the study was to assess the effect of alcoholic plant extracts: from hemp (H) and a mixture of extracts from sage, hemp and tansy (M) in concentrations: 0.5%, 1%, 5%, 10% and 20% on the growth of *Pseudomonas aeruginosa* and selected microorganisms promoting plant growth (PGPM), mainly bacteria: *Azotobacter chroococcum* (LS132), *Azotobacter vinelandii* (DSM2289), *Bacillus amyloliquefaciens* (LMG 9814), *Bacillus* sp. (BV84), *Burkholderia ambifaria* (MCI7), *Pseudomonas fluorescens* (DR54), *Pseudomonas granadensis* (A23/T3c), *Rahnella aquatilis* (BB23/T4d), *Rhodococcus kyotonensis* (DSM45159) and actinomycete *Komagataella pas*toris (PP59). The control combinations used an antibiotic for *P. aeruginosa* - kanamycin, and for PGPM - G418 disulfate salt (5mg/ml). The antimicrobial activity of the extracts was determined by the disc diffusion method. The antimicrobial efficacy of the extracts was calculated using Abbott's formula. 20% hemp extracts were more effective in inhibiting the growth of *P. aeruginosa* (50% growth inhibition vs. control), *B. amyloliquefaciens* (20% growth inhibition vs. control), *B. ambifaria* (73.9% growth inhibition vs. control). The remaining microorganizyms did not show reaction to the tested concentrations of hemp extracts. The mixture of plant extracts was most effective at a concentration of 20% and inhibited the growth of *P. aeruginosa* the most (25% growth inhibition vs. control), but did not inhibit the growth of the tested microorganisms promoting plant growth. The selective action of the tested plant extracts confirms their biocidal potential and wide range of applications in plant protection. Data were analyzed using analysis of variance (Duncan's test) at a significance level of $p \leq 0.05$ using the Statistica 12.6 program (StatSoft Polska, Kraków, Poland).