

Association of Diverse Groups of Bacteria with ‘Panchagavya’ and their Effect on Growth Promotion of Coffee Seedlings

S.S. BHAT¹, A.K. VINU¹, R. NAIDU²

¹Coffee Research Sub Station, Chettalli-571248 Kodagu, Karnataka, India

²Central Coffee Research Institute, Coffee Research Station-577117, Chikmagalur, Karnataka, India

SUMMARY

Thirty-seven diverse groups of bacteria were cultured from three formulations of ‘Panchagavya’. The formulation PG-III harbored the highest number of bacteria followed by PG-II & PG-I. *Pseudomonas fluorescens*, *Pseudomonas aeruginosa*, *Ochrabactrum anthropi* and species of *Bacillus*, *Deinococcus*, *Aeromicrobium*, *Acetobacterium*, *Caryophanon*, *Terrabacter*, *Kurthia*, *Flavobacterium*, *propionibacterium*, *Brachybacterium*, *Cupriavidus*, *Curtobacterium*, *Actinomyces*, *Methylobacterium*, *Bifidobacterium* and *Microbacterium* were identified. All the 37 bacterial isolates of ‘Panchagavya’ were screened for *in vitro* antagonism in dual culture against coffee pathogens viz., *Poria hypolateritia*, *Colletotrichum gleosporoides*, *Ceratocystis fimbriata*, *Rhizoctonia solani* and *Ambrosiella xylebori*. *Aeromicrobium* sp (P5), *Flavobacterium* sp (MPK7), *Pseudomonas fluorescens* (MPK 13), *Methylobacterium* sp (MPK II-2), *Bacillus* sp (OPK 2), MPK3 and MPK16 were identified as potential antagonists against all the five pathogens. Of the 37 bacteria screened for growth promotion on coffee seedlings under green house conditions, *Aeromicrobium* sp (P5), *Caryophanon* sp (P9), MPK6, MPK12, *Pseudomonas fluorescens* (MPK 13), MPK II-1 & MPK II-6 treated coffee seedlings recorded higher biomass and vigour index when compared to untreated control and other bacterial isolates.