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BOOK OF ABSTRACTS 2018

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MOLECULAR CHARACTERIZATION OF MICROMONOSPORA STRAINS ISOLATED FROM SAKARYA RIVER SEDIMENT

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Abstract:

Micromonospora type genus that belonged to Micromonosporaceae family was first described by Ørskov (1923) and its systematic structure was redescribed by Gao et al. (2014). Members of the genus Micromonospora could be isolated from different habitat such as soil, rhizosphere and marine sediment (Veyisoglu et al., 2016). Taxonomic position of Micromonospora isolates obtained from Sakarya River sediment was determined by 16S rRNA sequence analysis in the present study. Sediment collection was conducted from different locations such as source water outlet point, plant rhizosphere and open field sediment of Sakarya river in Cifteler, Eskisehir. Sediment samples from 4 different points utilized in selective isolation procedures, sucrose centrifugation gradient and dilution plate technique were among them. SM3, starch-casein agar, ISP1, ISP2, Bennett agar and tripton yeast extract agar were used as selective isolation medium. Plates were incubated at 28°C for 6-8 weeks.

Phylogenetic analysis of 16S rRNA gene sequences showed that isolates had been closely related to Micromonospora genus in the range of 90.76-99.57% resemblence. Micromonospora sp. coded as S1G21, S2G33, S2G35 and S1G34 had 98.51% relationship with M. vinacea. The highest 16S rRNA sequence similarities between S3S31, S1S34, S1S33 and S1S31 isolates and type strains of recognized species in the databases were 97.34-99.16% (38-12 nt differences) to M. spongicola. 16S rRNA sequences of S2S31, S2S22, S2S23, S1S21, S1S23 and S1S35 isolates revealed close similarity (between 90.76-99.43% ; 130-8 nt differences) with type strain of M. ovatispora.

Based on nt differebces, S2G33, S1G34, S1S34, S1S33, S1S31, S1S35, S2S31, S1S23, S2S22 and S2S23 isolates were identified as candidates of possible new species. Polyphasic methods used for their numeric, molecular and chemotaxonomic character identification will be performed in the near future.

Keywords: River Sediment, Selective Isolation, Micromonospora, 16S Rrna

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