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Comparison of myxobacterial diversity in sand from Kiritimati Island and German compost

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Myxobacteria harbor an enormous potential for new bioactive secondary metabolites and are at the focus of natural product research in our group since more than 30 years. Within this time more than 100 new substances and about 600 derivatives have been isolated from these fascinating bacteria. New groups of *myxobacteria* turned out to be particularly promising candidates for the discovery of unknown metabolites. Therefore the isolation of hitherto undescribed *myxobacteria* is of high importance. To examine our cultivation success with extended standard methods, the diversity of *myxobacteria* present in sand from Kiritimati Island and German compost was evaluated by both cultivation-based and -independent methods. Phylogenetic analyses of cultured and uncultured 16S rRNA gene sequences revealed a big potential of undescribed *myxobacteria* in both sampling sites which were detected by clone bank analyses but not by cultivation. A total of 79 *myxobacteria*-related sequences were identified from clones of the libraries from these two samples which grouped into 12 operational taxonomic units (OTUs) on basis of 99 % sequence similarity. Cultivation of exclusively bacteriolytic *myxobacteria* revealed 42 strains from the genera *Myxococcus*, *Coralloccoccus*, *Archangium*, and *Polyangium*, whereby the genera *Myxococcus* and *Coralloccoccus* were represented by both approaches. But even in this well studied genera, as well as in the suborders *Sorangiiineae* and *Nannocystineae*, a considerable number of clones were assigned to, if any, uncultivated organisms. However, high deficits are demonstrated in the cultivation of the remaining myxobacterial diversity. Especially clades which are exclusively represented by clones are of high interest with regard the cultivation of new bioactive secondary metabolite-producers.

Biography

Kathrin I Mohr studied biology at the TU Braunschweig. During her Postdoctoral time she investigated the "Biodiversity of algae and cyanobacteria in calcifying biofilms" and "In soil crusts from Namibia and South Africa" at the University of Göttingen. Since 2009 she is working as a Scientist at the Helmholtz Centre for Infection Research, department Microbial Drugs, Braunschweig. Her main focus is set on the isolation of *myxobacteria* and their screen and enhancement of production of new and known secondary metabolites. She is author and co-author of about 30 papers in reputed journals.

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