

## **Plants as bio-resource for PHB-producing bacteria**

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Bacteria are known to produce Polyhydroxybutyrate (PHB) as a storage substance, which has properties similar to those of Polypropylene. Therefore it is important to find PHB-producers which cope with industrial demands. Among terrestrial ecosystems, plant habitats with their high microbial activity are expected to be a good resource for PHB-producers. Indigenous microorganisms must be adapted to changing conditions of their environment and fluctuations in the concentration of nutrients exuded by plant roots. In the present study, different plant-associated bacteria were tested on their ability to produce PHBs by applying a multiphasic approach.

Using cultivation-dependent techniques, bacterial isolates from different plants were screened on their ability to form PHBs *in vitro* as well as on the presence of the PHB synthase gene *phaC* using PCR. On the other hand, a cultivation independent method was developed to determine the occurrence of gene *phaC* within the microbial community of plant habitats. Community DNA was extracted from rhizospheres, leaves, stems and fruits. By using specific primer pairs, genes of dominant PHB-producers were amplified and separated by SSCP. A high number of plant associated bacteria were shown to produce PHB *in vitro* or to harbour a PHB-synthase gene. In conclusion plant habitats appear to be an excellent source for PHB-accumulating bacteria.