Biotic testing and mitigating methods

Certain microorganisms may have the ability to decompose microplastics. Hence they may have an advantage in water bodies that are polluted by microplastics and can work as indicator species. They may also provide possible biological methods to mitigate microplastics pollution.

To determine which microorganism can be the most effective way to determine and mitigate microplastics pollution, five kinds of microorganisms that are commonly found in soil were selected, which are *Paecilomyces variotii, Aspergillus oryzae, Aspergillus niger, Bacillus pumilus,* and *Bacillus cereus.* They were cultivated on a medium with polyethylene as only source of carbon for 10 days. Then, the number of colonies were counted to determine the ability to breakdown microplastics.

Table 1. The number of colonies

	Paecilomyces varioti	*Aspergillus oryzae*	*Aspergillus niger*	*Bacillus cereus*	*Bacillus pumilus*
Repetition A	Too many to count (TMTC)	5	30	10	1
Repetition B	TMTC	10	45	10	5
Repetition C	TMTC	15	25	5	5

*numbers are rounded up due to the limitation of counting method
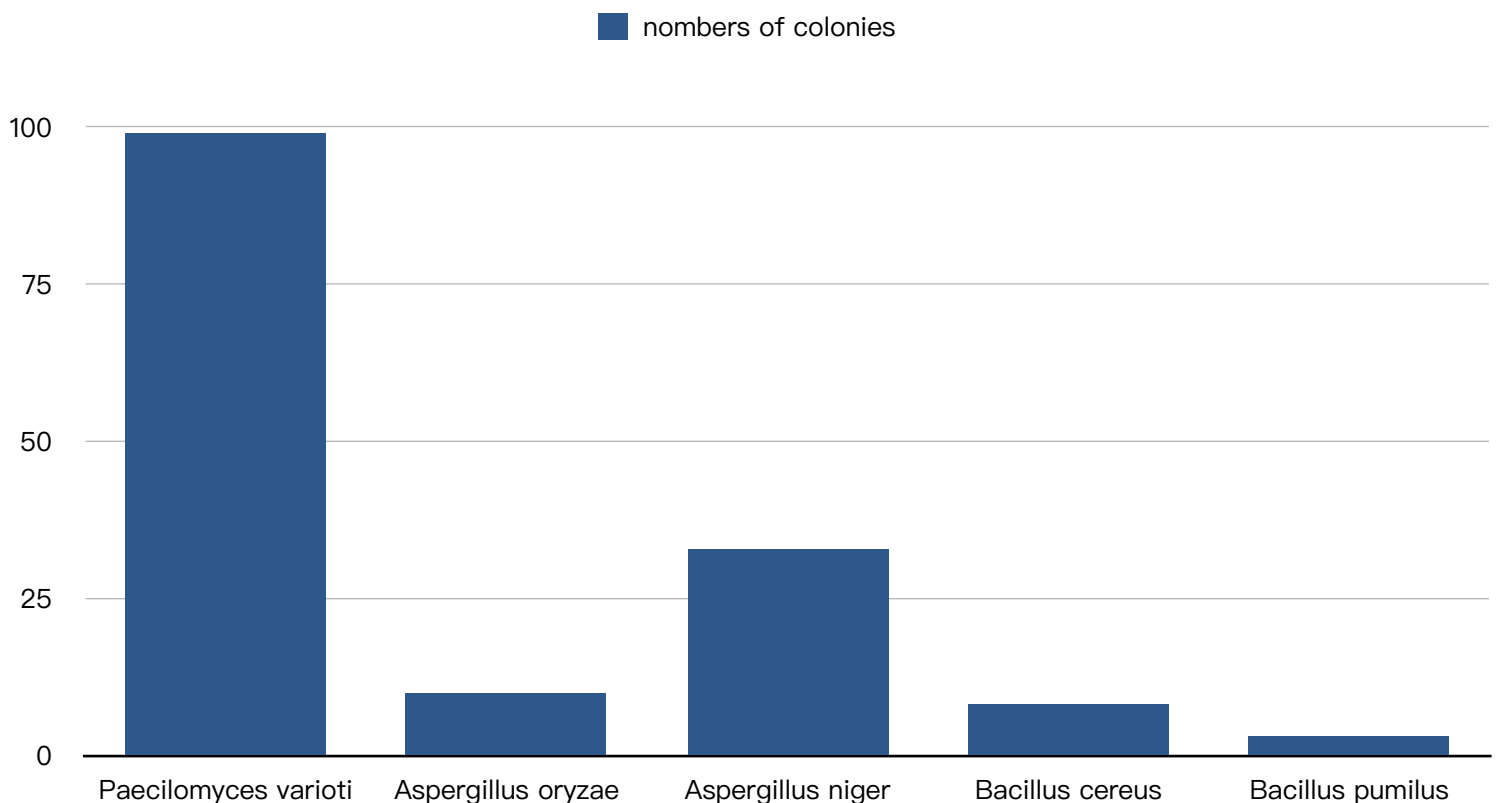
As shown in the table and chart, it can be conclude that *P.varioti* has the strongest ability to decompose microplastics and may work as biotic indicator the best. A high presence of *P.varioti* in water bodies may indicates serious microplastics pollution. When mitigating microplastics pollution, add *P.varioti* into the polluted area is also a considerable plan.