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Influence of the water soluble polymer polyvinyl alcohol on compost and soil fungal communities

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The water soluble biodegradable polymer polyvinyl alcohol (PVA) is widely industrially used in textile sizing and paper coating as well a variety of other applications. While some individual microbes and consortia capable of degrading PVA have been identified in the laboratory, there have been few studies that have examined its impact on naturally occurring microbial communities. In this research, terminal restriction fragment length polymorphism (TRFLP) were used to monitor changes in the fungal community profile in compost and soil at 25°C and 45°C following PVA addition over a six weeks period. In compost, the response to the presence of PVA was complex. At both 25°C and 45°C, in the absence of PVA, the community shifted over 6 weeks, with greatest change noticeable after 2 weeks. In the soil at 25°C, the community changed in the presence compared to the absence of PVA with the greatest shift in the community occurring after four weeks before returning to a profile similar to that seen in the absence of PVA after 6 weeks. Overall, this study has shown that PVA causes a significant shift in the fungal community with a number of T-RF's detected only in the presence of PVA. However, these were minor components of the community and the presence of PVA did not cause a major shift in the dominant species.

Biography

Somayeh Mollasalehi has completed her PhD from the University of Manchester and is currently working as a Researcher at the University of Manchester, UK.

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