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Biotechnology for a circular bioeconomy:

carbon capture, waste recycling and mitigation of global warming

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A biotechnological process for the production of pyocyanin and 1-hydroxyphenazine using waste streams from the potato chips industry

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Potato industry is one of the major food industries that generates considerable amounts of potato peels and wastewater (1). These wastes can then be utilized as components of microbial media in biotechnological production of pyocyanin (PYO) and 1-hydroxyphenazine (1-HP) using *Pseudomonas aeruginosa* (2). PYO and 1-HP possess important biological activities, thus could be applied in the field of medicine, and can be used as biocontrolling agents (2). However, their application is hindered due to high costs associated with their large scale production.

In this work, we established a fermentation process which utilizes either potato peels or potato wastewater as the sole nutrient source to obtain PYO and 1-HP. *P. aeruginosa* BK25H strain was selected from our in-house collection. This approach afforded 10 mg/l PYO and 9 mg/l 1-HP using potato wastewater and 15 mg/l PYO and 11 g/l 1-HP using potato peels after 24 h incubation. This work is the step towards zero-pollution and conversion of waste to valuable microbial products.

References

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