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An approach to optimize process parameter for peptides extraction from *Zophobas morio* (fabricius) using antifungal activity as the response (Article)

Yusof, F.^a [✉](#), Faruck, M.O.^a, Chowdhury, S.^b [👤](#)

^aDepartment of Biotechnology Engineering, Kulliyah of Engineering, International Islamic University Malaysia, P.O Box 10, Jalan Gombak, Kuala Lumpur, Selangor, Malaysia

^bDepartment of Mechatronics Engineering, Kulliyah of Engineering, International Islamic University Malaysia, P.O Box 10, Jalan Gombak, Kuala Lumpur, Selangor, Malaysia

Abstract

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Antifungal peptides have been successfully extracted from whole body larvae of *Zophobas morio* (Fabricius) by using acidified isopropanol. To ensure that the extraction is cost effective for maximum yield, Response Surface Methodology (RSM) using a Central Composite Design (CCD) strategy was adopted to optimize the extraction process parameters. The effect of independent parameters, namely, the homogenization temperature (°C), homogenization time (min) and solid (g) to the solvent (ml) ratio of the extraction process on the fungal growth was studied. The extracted samples obtained by conducting runs accorded by the experimental design showed varying degree of antifungal activity against *Aspergillus niger*, the selected fungal strain, as assayed by the "Poisoned agar technique". The investigation showed that the optimum values of the extraction parameters for the maximum antifungal peptides were 5 minutes homogenization time, 4°C homogenization temperature and 3.5:1 solid to solvent ratio. This study reports the development of an extraction process that allows careful recovery of antifungal peptides from larvae. In the validation of the experimental model, the error between the actual value and the predicted value was determined to be 3.57%. © All Rights Reserved.

Author keywords

Antifungal Central composite design (CCD) Design of experiment (DOE) Peptides Response surface methodology (RSM) *Zophobas morio*

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Yusof, F.; Department of Biotechnology Engineering, Kulliyah of Engineering, International Islamic University Malaysia, P.O Box 10, Jalan Gombak, Kuala Lumpur, Selangor, Malaysia; email:yfaridah@iiu.edu.my

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