Targeted discovery of tetrapeptides and cyclic polyketide-peptide hybrids from a fungal antagonist of farming termites.

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Abstract

Here, we report the targeted isolation and characterization of four linear non-ribosomally (NRPS) synthesized tetrapeptides (pseudoxylaramide A-D) and two cyclic NRPS-polyketide synthase derived natural products (xylacremolide A-B) from the termite-associated stow-away fungus Pseudoxylaria sp. X187. The fungal strain was prioritized for further metabolic analysis based on its taxonomical position and morphological and bioassay data. Dereplication of metabolic data was performed based on high resolution tandem mass spectrometry data and global molecular networking analysis. Structure elucidation of all six new natural products was performed based on a combination of 1D and 2D NMR analysis, Marfey's analysis and X-ray crystallography.

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