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Evidencing 98 secondary metabolites of *Penicillium verrucosum* using substrate isotopic labeling and high-resolution mass spectrometry

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Highlights

- Double stable isotope labeling of substrate for labeling the fungal metabolites
- *Evidencing of 98* secondary metabolites *produced by Penicillium verrucosum* on wheat
- 82 unknown secondary metabolites detected on *Penicillium verrucosum* by HPLC-HRMS
- Detailed MS and MS/MS data of all detected unknown metabolites

ABSTRACT: Industrial applications of fungal compounds, coupled with the emergence of fungal threats to natural ecosystems and public health, have increased interest in filamentous fungi. Among all pathogenic fungi, *Penicillium verrucosum* is one of the most common mold-infecting stored cereals in temperate regions. However, it is estimated that 80% of fungal secondary metabolites remain unknown. To detect new *P. verrucosum* compounds, an untargeted metabolomic approach was applied to fungus