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## Distribution of amatoxins and phallotoxins in different tissues and development stages of Amanita subpallidorosea

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A manita subpallidorosea is a lethal mushroom discovered recently in China. Due to the morphological similarity to edible mushrooms and the high toxicity, *A. subpallidorosea* had caused severe mushroom poisonings in China. However, the contents and distribution of the major toxins in *A. subpallidorosea* remain poorly studied. In this study, the concentration of the major cyclopeptide toxins, amatoxins and phallotoxins in different tissues and development phases were systematically analyzed for the first time. To find other structure related high risk compounds which are not reported or available as standards to launch toxicological study in *A. subpallidorosea*, a new non-targeted strategy based on liquid chromatography-high resolution mass spectrometer (LC-HRMS) was applied to analyze the toxin profiling of the mushroom and to find new cyclopeptide toxins. The results showed that the concentration of the total amatoxins in *A. subpallidorosea* were remarkably high, which was much higher than the worldly notorious *A. phalloides*, a lethal species from Europe and North America. The distribution of amatoxins and phallotoxins in different tissues showed that the analysis of mushrooms in different development stages showed that the amatoxin content was relatively high during early development, in which stage the fruit body grew most vigorously and regarded as tasty stage for mushroom picking. With the LC-HRMS based strategy, seven cyclopeptides and two new compounds were found and confirmed by parallel reaction monitoring (PRM) and all ion fragmentation (AIF) mode on a high resolution hybrid quadrupole-orbitrap mass spectrometer.

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