Stability and antioxidant activity of *Monascus* pigments in complex red yeast rice extracts

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The representatives of the genus *Monascus* are ascomycetes, traditionally used in Southeast Asia for food dyeing and conservation. These fungi produce a wide range of secondary metabolites. Apart from pharmaceutically used statins – monacolins and mycotoxin citrinin, the most important metabolites are azaphilone pigments. The *Monascus* pigments are divided into three groups, according to their absorbance maxima, yellow, orange, and red. The most traditional *Monascus* fermented product is red yeast rice (RYR).

This study was focused on the pigment content and its properties in RYR extracts. The stability of natural pigments is the key property for their suitability for use in the food or pharmaceutical industry. The complex extracts were prepared by ethanol extraction from RYR fermented by strains *Monascus purpureus* DBM 4630 and *Monascus* sp. DBM 4631 for 8, respectively 14 days. The pigment content of each extract was determined by UHPLC analysis and the stability assays and antioxidant assays were then performed. Temperature stability assay was performed within a temperature range of 30-80 °C. Effect of different pH to pigment extracts was performed at pH 2,5-11. Different storage conditions and their effects on pigment content were also tested. We have observed differences between pigments groups. Most stable are yellow pigments, most unstable are orange pigments which react and formed the red ones.