

# Identification of Rhei Radix et Rhizoma and Its Preparations by Nested PCR and DNA Sequencing Methods

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## ABSTRACT

Many Rheum species are used as Rhei Radix et Rhizoma. This study applied Nested PCR and DNA sequencing methods to identify which Rheum specie is present in the preparations of Chinese medicine. Three kinds of standard raw materials including *Rheum palmatum* L., *Rheum tanguticum* Maxim. ex Balf. and *Rheum officinale* Baill. were deposited in our specimen room. The standard raw materials were authenticated and purchased from source area orientated by global positioning system. ITS (internal transcribed spacer) of the extracted DNA from standard raw materials was amplified by PCR, and then analyzed by auto DNA sequencer to obtain the standard sequences. One set of primers based on the standard sequences, was thus designed to identify Rhei Radix et Rhizoma components. Sequence data of samples were compared with the standard sequences to confirm the Rheum species in the preparation. The results showed that 12 in 20 samples of preparation contained *R. officinale*, two contained *R. tanguticum* and four contained *R. palmatum*. Two contained Rheum species which are not *R. palmatum*, *R. tanguticum* or *R. officinale*. Twelve raw material samples could not be authenticated with the morphology and microscopy. The proposed method could be applied to identify these samples of raw material as that 10 samples are *R. officinale* and two are *R. tanguticum*.

Keywords: Rhei Radix et Rhizoma, ITS, nested PCR, DNA sequencing