

# **Identification of local medicinal plants species complexes in Tanzania**

Yingzi Ju

Medicinal plants are plants which have therapeutical properties and can be used for disease prevention and treatment. The medicinal plants have quite a long history in the world, and in fact, they are still widely used in many countries today, for example Tanzania. In Tanzania, there are several markets with thriving medicinal plant trade and more than 200 species are reported to be traded on these markets.

Several studies have been performed to describe species traded on the markets, but there still exist some interesting phenomenon. Firstly, the forms of medicinal plants on sold are diverse (powders, dried barks and mixtures), which means it is difficult to recognize the scientific species of them. Secondly, medicinal plants are sold with vernacular names in Tanzania, and actually more than 100 languages are spoken in this country. This may lead to the problem that one medicinal plant may have several different vernacular names. Thirdly, in Tanzania, sometimes people will give one name to several species because of the same function or similar morphology. In that case, one medicinal plant product may refer to several different species. This is what we think about the species complex.

However, most studies of medicinal plants in Tanzania were based on morphology and less based on molecular methods. The morphology studies sometimes cannot explain the problem of species complex. Species complex refer to the closely related species which look similar in appearance and difficult to find the boundaries between them.

The aim of this study is to identify 150 samples from 29 different local species complex by using the molecular method, DNA barcoding. DNA barcoding is a method to identify the certain species name of a sample by using a short genetic marker from the sample's DNA. After doing the identification of these samples with three molecular markers (nrITS, matK and rbcL), 76 samples were identified up to species level and 14 to genus level. Out of the 29 medicinal products, 14 of them show species complex and 7 of them point to a single species.

However, the identification result in this study is not comprehensive because of incompleteness of the reference database, contamination or by the actual presence of different species in the various samples. Therefore, some more studies are needed in the future to complete the result, such as complete the database, test other molecular markers or may be another identification method.