

## Identification of desert truffle fungi in Golestan province and study of their genetic diversity using molecular marker, SSR

### Abstract

Desert truffles are group of hypogeous edible fungi and classified in order Pezizales and included genera *Terfezia*, *Picoa* and *Tirmania*. This group of fungi growing in Mediterranean area from North Africa to Middle East. There are few species of Desert truffle in Iran, unfortunately rare information about them. Therefore, to study of Taxonomy, identification and genetic diversity of Desert truffles collected 119 isolate's from Golestan province and 12 isolate's from Ilam, Fars and Sistan and Baluchestan provinces from different habitats. The samples was collect from late march until mid-may in 2007-09. In order to morphological study of isolates, get microscopy slides hand section from different part of Fruiting bodies and then studied by using light microscope. To evaluate ascospore germination and produce of colony in different species of desert truffles, a little part of fruiting bodies cultured in Potato- Dextrose-Agar (PDA), Nutrient Agar (NA) and Murashig and Skoog medium's. In order to study genetic diversity of desert truffles collected from different habitat by using molecular marker short sequence repeat (SSR), 26 isolates in total were selected for molecular studies. Each of isolate were studied with six microsatellite primers such as sequences (CATA)<sub>4</sub>, (GACA)<sub>4</sub>, (TGTC)<sub>4</sub>, (CAG)<sub>5</sub>, (GAC)<sub>5</sub> and (GTG)<sub>5</sub>. As a result of morphological studies identified three species of desert truffles, species *Picoa lefebvrei* from Golestan province, species *Terfezia clavaryi* from Golestan, Fars and Ilam provinces and species *Tirmania nivea* from Sistan and Baluchestan province. The *P. lefebvrei* and *T. nivea* are new species for Iran's mycoflor. The ascospores isolated from fresh fruiting bodies of desert truffles *T. clavaryi* and *P. lefebvrei* germinated and produced colony on artificial medium Murashig and Skoog (MS). The ascospores of desert truffle *T. nivea* have not germination. Desert truffles species *Terfezia clavaryi* with (GACA)<sub>4</sub> primer and species *Picoa lefebvrei* with (CAG)<sub>5</sub> primer had been good polymorphism.

**Key words:** Desert truffle. Taxonomy, Morphology, Mycorrhiza, Pezizales



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