



NOTE

Mineral Contents of Truffles (*Terfezia boudieri* Chatin and *Terfezia claveryi* Chatin)

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Elemental contents of *Terfezia boudieri* Chatin and *Terfezia claveryi* Chatin growing in Konya (Karapınar and Çumra locations) province in Turkey were determined by inductively coupled plasma atomic emission spectrometry (ICP-AES). Potassium, phosphorus and magnesium contents of both truffles were found at high levels. While potassium content was found to be 12.9 and 11.9 g/Kg for *T. boudieri* and *T. claveryi*, phosphorus contents of truffles ranged from 4.6 to 5.1 g/Kg, respectively.

Keywords: Truffle, Mineral, ICP-AES.

INTRODUCTION

Truffles are hypogeous ascomycetes fungi that have a mycorrhizal association with some vascular plants. This study was undertaken to increase our knowledge on mineral contents which could be important for characterizing their nutritional value¹. This is called "Kumi, Keme, Dümbelek, Domalan, Tombalak" in Turkish². Truffles are excellent nutritional sources with specific good taste³. *Terfezia claveryi* has been reported to be useful in the treatment of some eye diseases⁴. Despite the economic importance of truffles, little work has been done regarding their chemical composition, such as amino acids, carbohydrates, organic acids, fatty acids, minerals and proteins^{4,6}. Due to limited information on mineral contents, the objective of this research was to obtain information on the minerals and heavy metals found in *Terfezia boudieri* Chatin and *Terfezia claveryi* Chatin wild grown in Turkey.

EXPERIMENTAL

Desert truffles (*Terfezia boudieri* Chatin and *Terfezia claveryi* Chatin) (about 1 Kg of each) were collected from Konya (Karapınar and Çumra locations) province in Turkey in May 2011. Collected samples were dried at 70 °C in a drying cabinet with air-circulation until they reached constant weight. Later, about 0.5 g dried and ground sample was digested by using 5 mL of 65 % HNO₃ and 2 mL of 35 % H₂O₂ in a closed microwave system. The volumes of the digested samples were made up to 20 mL with ultra-deionized water and mineral

concentrations were determined by inductively coupled plasma-optical emission spectroscopy (ICP AES; Varian-Vista, Australia)⁷.

Working conditions of ICP-AES: Instrument: ICP-AES (Varian-Vista); RF Power: 0.7-1.5 kw (1.2-1.3 kw for Axial); Plasma gas flow rate (Ar): 10.5-15 L/min. (radial) 15 " (Axial); Auxiliary gas flow rate (Ar): 1.5 "; Viewing height: 5-12 mm; Copy and reading time: 1-5 s (max. 60 s); Copy time: 3 s (max. 100 s). Results were analyzed for statistical significance by analysis of variance

RESULTS AND DISCUSSION

Mineral contents of *Terfezia boudieri* Chatin and *Terfezia claveryi* Chatin growing in Konya (Karapınar and Çumra locations) province in Turkey are given in Table-1. Elemental contents of *Terfezia boudieri* Chatin and *Terfezia claveryi* Chatin growing in Konya (Karapınar and Çumra locations) province in Turkey were determined by inductively coupled plasma atomic emission spectrometry (ICP-AES). Potassium, phosphorus and magnesium contents of both truffles were found at high levels. While K content was found to be 12.9 g/Kg and 11.9 g/Kg for *T. boudieri* and *T. claveryi*, P contents of truffles ranged from 4.6 to 5.1 g/Kg, respectively. Cr was established at a high level in both truffles. In addition, the Cr content of *T. claveryi* was found to be higher than that of *T. boudieri*. While the Cd content of *T. boudieri* was found to be 0.07 mg/Kg, the Cd content of *T. claveryi* was determined

TABLE-1
MINERAL CONTENTS OF *Terfezia boudieri* CHATIN AND
Terfezia claveryi CHATIN (n:3)

Minerals (mg kg ⁻¹)	Karapınar (<i>Terfezia boudieri</i> Chatin)	Çumra (<i>Terfezia claveryi</i> Chatin)
K	12914.00 ± 1038*	11904.00 ± 719
Mg	676.30 ± 56.6	827.70 ± 29.1
P	4684.00 ± 663	5126.00 ± 933
S	736.80 ± 74.1	1049.40 ± 102.9
B	141.40 ± 31.1	148.08 ± 18.13
Cu	9.02 ± 5.20	19.14 ± 2.18
Fe	11.75 ± 0.98	15.94 ± 1.768
Na	685.90 ± 116.9	691.00 ± 47
Zn	18.52 ± 6.81	48.77 ± 4.73
Mo	0.24 ± 0.06	0.30 ± 0.14
Cd	0.07 ± 0.0300	0.24 ± 0.09
Cr	0.93 ± 0.196	2045.00 ± 0.35
Ni	0.53 ± 0.227	1063.00 ± 0.30

*mean ± standard deviation

as 0.24 mg/Kg. Ni contents of both truffles were between 0.53 and 1.06 mg/Kg, respectively. The Ca, Cd, Cu, Fe, K, Mg, Mn, Na, Pb and Zn contents of *T. claveryi* were found to be

172.31 ± 3.20, 0.76 ± 0.06, 14.31 ± 0.81, 12.87 ± 0.69, 156.11 ± 3.06, 85.31 ± 1.87, 1.87 ± 0.19, 163.11 ± 3.96, 0.92 ± 0.06 and 10.92 ± 0.88, respectively⁸.

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