



NOTE

Contents of Rare Earth Elements in Orange from Rare Earth Mining Area of Wuxun, China

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Concentrations of rare earth elements in oranges from Xunwu county of Jiangxi province (rare-earth mining area) was determined by ICP-MS to investigate the effects of rare earth elements mining on food safety. The results showed that the contents of all detected rare earth elements in oranges from Xunwu county were much higher than the contents in those from Nanfeng county and were several times of that of other fruits, which proved that rare earth mining significantly affected the ingredient of food. But the contents of rare earth elements were still much lower than the national hygiene standards of rare earth limits in food.

Key Words: Rare earth elements, Xunwu orange, ICP-MS.

Xunwu county is the rare earth kingdom, also is the hometown of tangerine of China. A certain amount of rare earth elements can promote growth and development of plants¹, but excess of rare earth elements can bring the food safety issues². Due to the high rare earth elements content of local soil, so rare earth elements content monitoring in tangerine from Xunwu County is of great significance for the local food safety control.

The navel oranges were sampled in Xunwu county of Jiangxi province. The ICP-MS instrument was produced by PE Company of USA.

Experimental method: Instrument parameters of ICP and MS were just the same as the literature³.

The contents of rare earth elements La, Ce, Pr and Nd were higher than 25 ng g⁻¹; contents of Sm, Eu and ranged from 8-16 ng g⁻¹; other rare earth elements were all lower than 5.0 ng/g (Table-1). The contents of all detected rare earth elements in oranges from Xunwu county were much higher than the contents in those from Nanfeng county³ and were several times of that of other fruits⁴, which proved that rare earth mining significantly affected the ingredient of food, but the contents of rare earth elements were still much lower than the national hygiene standards of rare earth limits in food⁵.

Rare earth elements are harmful to animal and human healthy^{6,7}. Present results demonstrated that the oranges contained high contents of rare earth elements in Xunwu county oranges, but the concentrations are much lower than the standards,

TABLE-1
CONTENTS OF RARE EARTH ELEMENTS
IN NAVEL ORANGGE FRUITS (ng g⁻¹, n = 4)

Elements	Contents	Elements	Contents
La	47.21	Tb	1.98
Ce	72.33	Dy	4.32
Pr	26.79	Ho	0.91
Nd	34.46	Er	1.22
Sm	15.76	Tm	0.72
Eu	8.35	Yb	2.11
Gd	9.08	-	-

so it is not alarming much but should often detect the rare earth elements in food from rare earth mining area.

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