



## NOTE

### Determination of Selenium Content and Quality of Different Selenium-Enriched Products by Hydride Generation Atomic Fluorescence Spectrometry

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Selenium plays an important antioxidant role and anticancer in the body. The ability to enrich selenium in different organism and the qualities of these products are still rare. Concentrations of selenium in different selenium-enriched products were determined by hydride generation atomic fluorescence spectrometry. The results showed that purple potato is lower than standard and other three products are higher than standards. So selenium-enriched products should be strictly tested before entering the market.

**Key Words:** Malt, Potato, Wheat, Selenium-enriched products, Hydride generation atomic fluorescence spectrometry.

Selenium is one of the essential component of glutathione peroxidase, which plays an important antioxidant role in the body and is an important indicator, which reflect the body's antioxidant ability and oxidative status of tissue<sup>1</sup>. So there were many selenium-enriched products are available in the market, such as selenium-enriched, spirulina platensis<sup>2</sup>, selenium-enriched garlic<sup>3</sup>, selenium-enriched malt<sup>4</sup>, selenium-enriched yeast<sup>5</sup>, etc. The ability to enrich selenium in different organism should have difference and the qualities of these products are uneven, but reports are still rare in this area.

This paper studied abilities to enrich selenium in different organism and the quality of different selenium-rich products after the application of the same fertilizer, which will provide a theoretical basis for the production and applications of selenium-rich products.

Sprouts and malts were produced in warm room cultured with selenium solutions, wheat and purple potato were two times sprayed selenium fertilizer at flowering period and early period of maturity<sup>6</sup>, all the operations are in accordance with product instructions strictly.

Samples was washed, dried at 60 °C, weighed 1 g (accurate to 0.001 g) in the digestive tract, added 10 mL nitric acid, 2 mL peroxide Hydrogen, shake to mix, digest in the microwave digester, the digestion conditions were showed in Table-1.

The results showed concentrations of Se in purple potato, wheat, malt and sprout were lower than 0.01, 568, 1.13 and 1.87 mg/kg (Table-2), which showed that all these four selenium-enriched products are substandard, purple potato is lower than standard and other three products are higher than standards<sup>7</sup>. So selenium-enriched products should be strictly tested before entering the market.

TABLE-1  
DIGESTION PROCEDURE OF SAMPLES

Stage	Power	Ramp	Temp. (°C)	Hold
1	1600 W	6:00	120	1:00
2	1600 W	3:00	150	5:00
3	1600 W	5:00	200	10:00

TABLE-2  
CONCENTRATION OF Se IN DIFFERENT  
SELENIUM-ENRICHED PRODUCTS

Samples	Se content (mg/kg)	Methods
Purple potato	< 0.01	Ref. 8
Wheat	568	
Malt	1.13	
Sprout	1.87	

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