

Application Note

EDXRF Analysis of Brewer's Yeast Preparation



Various minerals are included in brewer's yeast preparation, and it is thus used as a nutritional supplement as well. With EDX the qualitative and quantitative analysis of the constituent minerals in these tablets can be achieved simply and conveniently. We have given an example of such analysis below.

Sample

A brewer's yeast preparation (tablet) commonly available on the market was analyzed.

Sample Preparation

The tablet was affixed to adhesive tape without any prior preparation of the sample. A photograph showing the condition in which the sample is analyzed is shown in Fig. 1.

Result of Qualitative Analysis

The result of the qualitative analysis of the brewer's yeast preparation is shown in Fig. 2.

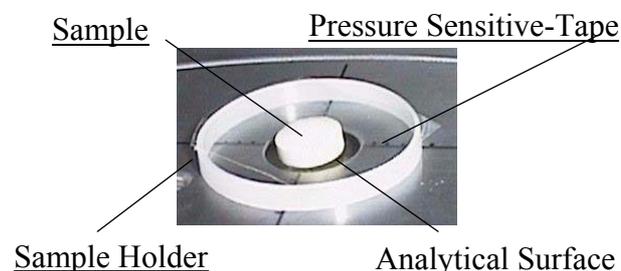


Fig.1 Sample Loading

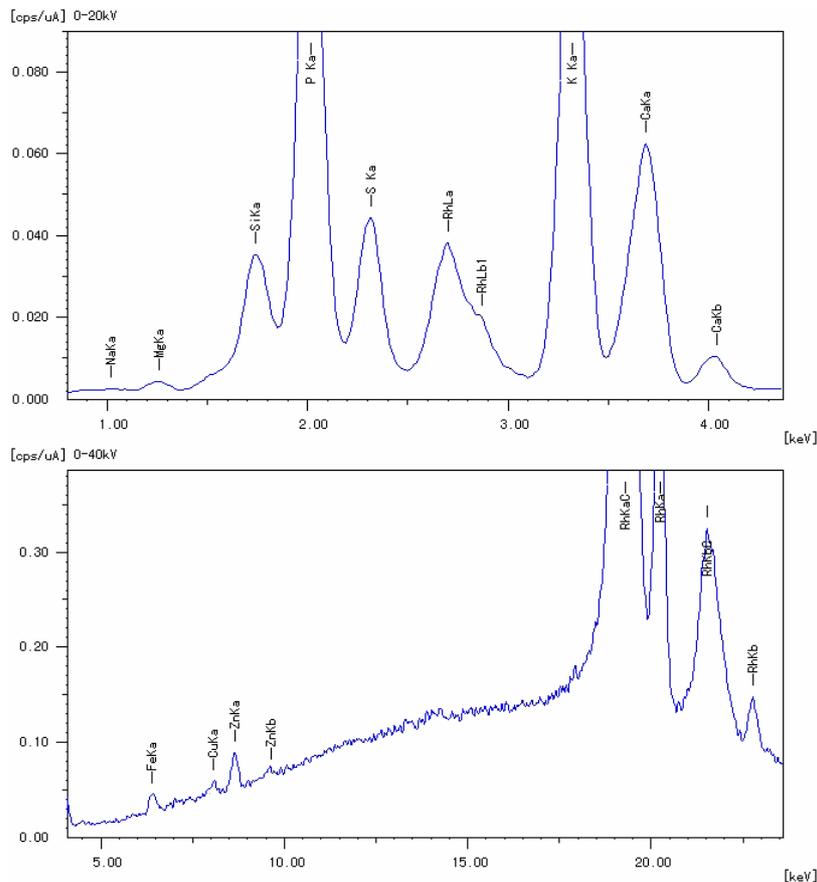


Fig.2 Qualitative Analysis of Brewer's Yeast Preparation

Effect of the Zr Filter

By using the filter effectively, the scattering of the primary X-rays from the X-ray tube can be reduced to achieve an analysis with a good S/N ratio. In the instance Cl and Sr was detected using the filter.

The result of this qualitative analysis is shown in Fig.3.

Element detected Cl Al Filter
 Sr Ni Filter

(In addition to this the EDX-700/800 comes equipped with Zr, Ti and polymer filters as standard)

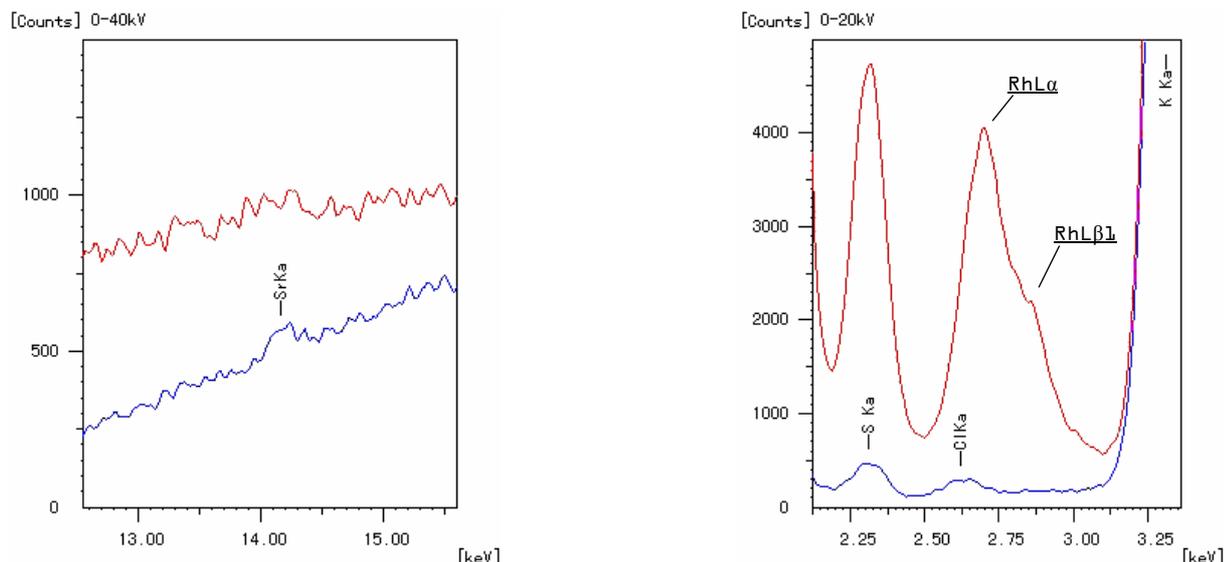


Fig.3 Qualitative Analysis of Brewer's Yeast Preparation using Filters

Result of Quantitative Analysis

The quantitative analysis result arrived at by the FP method from the qualitative analysis results shown in table 1.

Note that in the quantitative calculations the major was assume to be protein (amino acid) and used as the balance (residue).

Table 2 Quantitative Value of Medicun by FP Method

	K	P	Ca	Si	S	Mg	Na	Cl	Cu
Quantitative Value (%)	2.70	1.46	0.98	0.68	0.23	0.23	0.21	0.11	0.002
Reference Value (%)	1.900	1.600	0.260	--	--	0.250	0.162	--	0.0003

	Fe	Zn	Sr	C ₂ H ₅ NO ₂
Quantitative Value (%)	0.009	0.006	0.001	93.38
Reference Value (%)	0.0066	0.0048	--	Protein etc.

Analytical Conditions

Instrument : EDX-800

X-ray Tube: Rh target

Filter: not used, Al, Ni

Voltage (Current): 50 kV-17-31μA (Auto)

15kV-240-565 μA (Auto)

Atmosphere: Vacuum

Measurement Diameter: 10 mm

Measuring Time: 300 sec

Dead Time: 25-26 %

The given specifications serve purely as technical information for the user. No guarantee is given on technical specification of the described product and/or procedures.