Hexane-soluble fat content in pomegranate seeds

UniversalExtractor E-800: Fat determination in pomegranate seeds

A simple and reliable procedure for determination of hexane-soluble fat content in pomegranate seeds is introduced. Pomegranate seed powder is of great interest due to its high nutritional value and its potential in phytomedicine. The extraction is performed with the UniversalExtractor E-800 using Soxhlet warm. The presented application gives reliable and highly reproducible results.

1. Introduction

Fat determination is one of the key analysis to control the product quality. The sample is extracted with the UniversalExtractor E-800 using the method Soxhlet warm. After the extract has been dried to a constant weight the total fat content is determined gravimetrically.

2. Experimental

Equipment: UniversalExtractor E-800

Sample: *Punicae granati semen pulvis* (80% pomegranate powder, 20% calcium sulfate, Reference value: 6.99%)

Determination: The sample was weighed into a cellulose thimble. After covering the sample with cotton wool, the cellulose thimble is placed into the extraction chamber. The extraction was performed using the UniversalExtractor E-800 (Figure 1) applying the parameters specified in Table 1.

Table 1: Parameters for Soxhlet warm with the UniversalExtractor E-800

Extraction method	Soxhlet warm
Solvent	n-Hexane
Extraction Heating level	20 cycles 10 (Extraction) / 4 (Chamber)
Rinse step	0 min
Drying 1 Heating level Drying 2 Heating level Drying 2 Heating level	☑ AP 0 min 10 ☐ AP 5 min 10 ☐ AP 5 min 5
Solvent volume	120 mL

The samples were extracted in triplicate. The extracts were dried to a constant weight in a drying oven at 102 °C and the total fat content was calculated.

Figure 1: UniversalExtractor E-800

3. Results

The determined fat content is presented in Table 2. The results correspond to the reference value of 6.99%. The fat content determination shows a low relative standard deviation.

Table 2: Determined hexane-soluble fat content of pomegranate seed powder, fat in g/100 g (rsd: relative standard deviation), n=3

Sample	Fat content	Mean value	rsd
Punicae granati semen pulvis	6.68% 6.64% 6.63%	**6.65%**	**0.44%**

4. Conclusion

The determination of hexane-soluble fat content in pomegranate seed powder using the UniversalExtractor E-800 provides reliable and repeatable results with low relative standard deviation (rsd). The results correspond well with the reference value, determined by the previously-used, validated method of PADMA.

5. Acknowledgements

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6. References

[1] AOAC 963.15 Fat in Cacao Products
[2] ISO 22630:2015 Oilseed meals – Rapid extraction method
[3] AOAC 991.36 Fat (crude) in meat and meat products

For more detailed information and safety considerations please refer to the Application Note No. 416/2020.