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Czech J. Food Sci.

Šucman E., Bednář J.:

Determination of

fluoride in plant material using microwave induced oxygen combustion

Czech J. Food Sci., 30 (2012): 438-441

Fluorine is essential in human and/or animal nutrition, thus it is important to know its concentration in a diet. One of the important sources of fluorine for humans is tea, containing relatively high amounts of this trace element. A method for fluoride determination in various kinds of tea using microwave supported sample preparation in a high pressure oxygen atmosphere followed by potentiometry with a fluoride ion-selective electrode were described. The parameters of the microwave device for such combustion procedure were checked and optimised in order to find settings ensuring complete sample combustion and/or absorption of the analyte in the absorption solution. For the ion-selective electrode measurement the technique of standard addition was chosen. The Nernstian slope of the fluoride ion-selective electrode was

measured and calculated in the concentration range in which the potential of samples occurred. Concentrations of fluorides in tea in the range from 24.5 mg/kg to 254.5 mg/kg were found. In order to check the accuracy of the method certified reference materials were used.