

## **Instrumental Techniques in Food Analysis 3(2-1)**

### **Theory**

Introduction, significance. Instrumental techniques: principles, instrumentation, applications. Sample preparation. Supercritical fluid extraction. Chromatography: TLC, ion chromatography, GC, HPLC, LCMS, Spectroscopy: UV-VIS, atomic emission and absorption, Infrared - FTIR, NIR, NMR. Electrophoresis: types, principles, applications.

### **Practical**

Estimation of food components using UV-VIS spectrophotometer. Mineral analysis by flame photometer and atomic absorption spectrophotometer. Determination of organic acids by chromatography. Determination of volatile compounds by gas chromatography, Identification of food components by FTIR. Protein characterization by electrophoresis.

### **Books Recommended**

1. Otles, S. 2009. Handbook of food analysis instruments. CRC Press, Taylor & Francis Group, Boca Raton, Florida, USA.
2. Nielson, S.S. 2003. Food analysis, Kluwer Academic/Plenum Pub., New York, USA.
3. Pomeranz, Y. and Meloan, C.E. 2000. Food analysis: theory and practice. CBS Publishers, New Delhi, India.

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