

212048 – PHYSICAL-CHEMISTRY OF FOOD AND PROCESSING

CREDITS: 04 (four) – 60 hours/class

CONTENT:

Basic physicochemical concepts applied to food processing: basic thermodynamic aspects; transport phenomena; polymers; proteins; relations with water; dispersion systems; surface phenomena; formation of emulsions and foams; colloidal interactions; crystallization; vitreous transition; freezing and drying.

SYLLABUS:

Essential physicochemical concepts applied to food processing:

1. Basic thermodynamic aspects;
2. Transport phenomena;
3. Polymers;
4. Proteins;
5. Relations with water;
6. Dispersion systems;
7. Surface phenomena;
8. Formation of emulsions and foams;
9. Colloidal interactions;
10. Crystallization;
11. Glass transition;
12. Freezing and drying.

BIBLIOGRAPHY:

1. WALSTRA, P. Physical chemistry of foods. New York, US: Marcel Dekker, 2003 (ISBN: 0-8247-9355-2).
2. COUPLAND, John. An Introduction to the Physical Chemistry of Food. Springer, 2014 (ISBN: 978-1-4939-0760-1).
3. DAMODARAN, S; PARKIN, K.L; FENNEMA, O. R. Química de alimentos de Fennema. 4.ed. Porto Alegre: Artmed, 2010. 900 p. (ISBN: 978-85-363-2248-3).

Periodicals and databases:

- a) Food Chemistry;
- b) Food Hydrocolloids;
- c) Journal of Food Science;
- d) Comprehensive Reviews in Food Science and Food Safety;
- e) Journal of Agricultural and Food Chemistry.