

Ementa:

Extração Líquido-Líquido em Sistemas de Duas Fases Aquosas (SDFA)- Introdução: Conceitos, importância, vantagens, desvantagens.- Estudo dos diagramas de fases.- Estudo dos fatores que determinam a separação de biomoléculas por SDFA . Modelo genérico de partição por SDFA Aspectos Econômicos e de Segurança. - Extração Líquido-Líquido em Sistemas Micelares de Duas Fases Aquosas (SMDFA)- Tensoativos. Micelas. Estudo das interações entre tensoativos e proteínas. Separação de fases em soluções aquosas de tensoativos. Diagramas de fases. Aplicações, vantagens e desvantagens.- Extração Líquido-Líquido por Micelas Reversas- Introdução: conceitos, importância, vantagens e desvantagens.- Estudo dos fatores que afetam a extração de bioprodutos. Diagramas de fases.

Bibliografia

Chiang, C. L.. Separation of cholesterol esterase in cloud point extraction system. Journal of the Chinese Institute of Chemical Engineers. 30(2):171-176. 1999.

Costa, S.A.; Pessoa Jr, A.; Roberto, I. C. Partition of Xylanolytic Complex from *Penicillium Janthinellum* by Aqueous Two-Phase System (atps). Journal of Chromatography B, 743:339-348, 2000.

Goddard, E. D., Ananthapadmanabhan, K. P. Interactions of surfactants with polymers and proteins. Boca Raton: CRC Press, 1993.427p.

Harrison, R. G. Protein Purification Process Engineering. New York: Marcel Dekker, Inc. 1993.

Hasmann, F. A.; Pessoa Jr, A.; Roberto, I. C. Optimization of pH and Temperature for β -Xylosidase Recovery by Reversed Micelles. Biotechnology Techniques. 13(4):239-242, 1999.

Hasmann, F. A.; Pessoa Jr, A.; Roberto, I. C. Optimization of pH and Temperature for β -Xylosidase Recovery by Reversed Micelles: Use of Cationic Surfactant. Applied Biochemistry and Biotechnology. 84-86:1101-1111, 2000.

Kamei, D. T., Wang, D. I. C., Blankschtein, D. Fundamental investigation of protein partitioning in two-phase aqueous mixed (nonionic/ionic) micellar systems. Langmuir, Washington, D. C., v. 18, p. 3047-3057, 2002.

Kamei, D. T., King, J. A., Wang, D. I. C., Blankschtein, D. Separating lysozyme from bacteriophage P22 in two-phase aqueous micellar systems. Biotechnol. Bioeng., New York, v.80, n.2, p.233-236, 2002.

Kamei, DT; Liu, CL; Haase- Pettingell, C; et al. Understanding viral partitioning in two-phase aqueous nonionic micellar systems:1. Role of attractive interactions between viruses and micelles. Biotechnol. Bioeng, 78 (2): 190-202, 2002.

Kamei, DT; King, JA; Wang, DIC; et al. Understanding viral partitioning in two-phase aqueous nonionic micellar systems: 2. Effect of entrained micelle-poor domains. Biotechnol. Bioeng, 78 (2): 203-216. 2002.

Kilikian, B. V.; Bastazin, M. R.; Minami, N. M.; Gonçalves, E. M. R., Pessoa Jr, A. Liquid-Liquid Extraction by Reversed Micelles in Biotechnological Process. Brazilian Journal of Chemical Engineering. 17(01):29-38, 2000.

Lee, C. K.; Su, W. D. Nonionic surfactant-mediated affinity cloud-point extraction of vancomycin. Separation Science and Technology. 34(16):3267-3277. 1999.

Liu, C. L., Kamei, D. T.; King, J. A., Wang, D. I. C., Blankschtein, D. Separation of proteins and viruses using two-phase aqueous micellar systems. Biotechnol. Bioeng. 52:185-192. 1996.

Pessoa Jr, A.; Vitolo, M. Recovery of inulinase Using BDBAC Reversed Micelles. *Process Biochemistry*, 33(3):291-297, 1998.

Rangel-Yagui, C. O., Lam, H., Kamei, D. T., Wang, D. I. C., Pessoa-Jr, A., Blankschein, D. Glucose-6-phosphate dehydrogenase partitioning in two-phase aqueous mixed (nonionic/cationic) micellar systems. *Biotechnol. Bioeng.*, New York, v.82, p.445-456, 2003.

Rosen, M. J. *Surfactants and interfacial phenomena*, 2 ed. New York: John Wiley & Sons, 1988. 431p.

Tjerneld, F.; Alred, P. A.; Harris, J. M. Utilization of temperature-induced phase separation for purification of biomolecules. Pp. 505-511. In: D. L. Pyle (Ed), *Separation for biotechnology*. Vol. 3. Elsevier, London. 1994.

Xu, Y.; Souza, M. A.; Ribeiro-Pontes, M. Z.; Vitolo, M.; Pessoa- Jr, A. Liquid-Liquid extraction of pharmaceuticals by aqueous two-phase systems. *Brazilian Journal of Pharmaceutical Sciences*. V. 37, n.3, p. 305-320, 2001.

Wheelwright, S. M. *Protein Purification: Design and Scale Up of Downstream Processing*. Munich: Hanser Publications, 1991.

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