

CONTROLLED RELEASE OF ENZYMES FROM ENZYM-IMPRINTED POLYMERS UNDER THE INFLUENCE OF WATER SOLUBLE POLYMERS

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In a previous study [1], we have shown that the release of enzymes from enzyme-imprinted polymers is possible in skin care applications. In order to provide the basis for a rational design of cosmetic formulations containing these molecularly imprinted polymers (MIPs), the influence of water-soluble polymers, e.g. used as thickeners in cosmetics formulations, has now been systematically investigated for enzyme release from enzyme-imprinted MIP hydrogels. For this purpose, the releases of exemplary polylactic acid, polyacrylic acid Na salt and polyacrylamide were tested both in deionized water and an acetate buffer (pH 5). It was found that the addition of these water-soluble polymers significantly influence the release of lipase from lipase-imprinted MIPs. This influence dependent on the charge ratio of the water-soluble polymers and the polymer matrix, and can be used to increase or decrease the enzyme release rate.

[1] Brüggemann O., Volk T., *Controlled Release of Active Agents Form Molecularly Imprinted Polymers in Skin Care Formulations*, Poster presentation MIP 2016-Lund, 29.06.2016.