

## **Alternative Adsorbents for the Chromatographic Separation of Functional Food Ingredients**

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Nowadays, functional peptides and oligosaccharides are important as foodstuff, pharmaceuticals or specialty products. In the food industry, these components are usually present in very large product and waste streams from which they need to be separated. In order to do this, a purification by means of a chromatographic or adsorptive step is needed. At the moment, the conventional packed bed of particles is being used. However, due to elevated pressure drop, long cycle times and, as a result, large size of equipment needed, these large streams are not so suitable to be processed with an affordable classic chromatographic process. Monoliths have been proven in other applications and might be a good alternative due to their increased convective transport and no negative trade-off between cycle time and pressure drop. This project aims at comparing both theoretically and experimentally the use of monoliths in liquid systems for separation of food ingredients. Initially a theoretical cycle time comparison using a one dimensional approach has been achieved. Furthermore, monoliths and packed bed have been used to study the possibilities in the separation of two industrial cases and in order to validate dynamic models using these structures.

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