

## **Designed polymers for purification of flavour oils**

*Ecevit Yilmaz, PhD, MIP Technologies AB (a subsidiary of Biotage AB), Lund, Sweden*

Designed polymers are a class of selective resins with engineered selectivity for particular target molecules or 'classes' of molecules. These designed polymers are obtained by careful design of their surface chemistry and morphology which allows them to exhibit unique separation capabilities. The tailored and optimised selectivity is utilised to remove undesired impurities but can also be used for directed retrieval of valuable compounds from various solutions. In contrast to designed resins, conventional resin adsorbents or ion exchangers do not exhibit this advantageous selectivity. Thus, an area where selective, designed polymers have significant practical applicability as a work-up tool is in the preparative clean-up of liquid flavours such as citrus oils. Citrus essential oils are important ingredients in the food, flavour and fragrance industries. It is problematic for these industries that a considerable portion of the global citrus flavour oil batches are contaminated with sometimes unacceptably high levels of different agricultural residues, such as pesticides. Traditional unit operations such as distillation are not effective in the removal of pesticides without detrimental impact on taste and aroma. To meet this challenge MIP Technology AB has designed and developed a novel type of polymeric adsorbent that is able to selectively remove a large number of different pesticides from citrus oils. The presentation describes the area of selective adsorbents in separations, the advantages of designed polymers and their characteristics. Their performance towards the efficient and selective removal of pesticides from natural lemon oil will be presented as a case study.



*Ecevit Yilmaz has been working for over 10 years at MIP Technologies AB (a subsidiary of Biotage AB) in Lund, Sweden. After his studies in Biotechnology in Germany at the Technical University of Braunschweig and the USA at the Oregon State University, he moved on to Lund University, Sweden to pursue a PhD on polymeric materials. After a few years of employment he took the position as Chief Technology Officer at MIP Technologies AB. Today he is the Global Product Manager for Industrial Resins. His expertise lies in the areas of designed adsorbents for use in the life science, food and consumer goods industries.*

**International Federation of Essential Oils and Aroma Trades Limited**

**SOFW**, Dorfstrasse 40, 86470 Thannhausen, Germany

Tel: +49 8281 799 40-44 | Fax: +49 8281 799 40-50 | [ifeat@ifeat.org](mailto:ifeat@ifeat.org) | [www.ifeat.org](http://www.ifeat.org)

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