Session	Emerging Innovative Technologies: Novel Fermentation and Downstream Processing Innovations
Title	Novel Platform Technology to Purify Organic Acids
Company	Bio Base Europe Pilot Plant
Speaker	Dr. Sinah Tönjes
Keywords feedstock (max 2)	Various
Keywords technology (max 2)	Extraction, Purification
Keywords End-Product (max 2)	Organic acids

Abstract:

The purification of biobased organic acids after fermentation remains a critical bottleneck for cost-effective and sustainable biomanufacturing. **Bio Base Europe Pilot Plant (BBEPP**) has developed a novel resin-based downstream technology that merges the advantages of ion exchange and reactive extraction by embedding liquid extractants into porous resins. These innovative **Solvent-Impregnated Resins** enable efficient organic acid recovery while tackling common challenges such as emulsion formation and salt waste production.

The resins are easy to prepare and show superior extraction capacities for various organic acids including lactic acid, acetic acid, and succinic acid. The technology is applicable both downstream and *in situ*, whereby product inhibition is additionally reduced in the latter. Moreover, the developed resource recycling steps allow full extractant reuse with zero waste. Unlike conventional processes, this novel process delivers a more concentrated product stream, lowering the overall energy demand. For instance, energy use for lactic acid purification could be reduced by up to 40 %.

While already demonstrated at bench-scale, BBEPP is currently validating the technology at pilot scale. By using existing infrastructure, for instance from ion exchange or adsorption technologies, a rapid industrial implementation can be achieved.