For Immediate Release

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TEAGASC researcher, part of the IMPRESS project, wins “Best Shotgun Communication” award at ULTRASONICS 2025

Top left:Brijesh Tiwari Principal Research Officer of TEAGASC and Coordinator of IMPRESS and Wenrui Dong, top right: Eugenia Mazzara; bottom left: Rahel Suchintita Das; and bottom right Joncer Naibaho

TEAGASC researchers made a strong IMPRESSion at the “**7th International Caparica Conference on Ultrasonic-based Applications from Analysis to Synthesis**” (ULTRASONICS 2025), held in Caparica, Portugal, from 22 to 26 June 2025. Represented through four distinct presentations, the team contributed to a dynamic forum that brought together researchers, scientists, and industry experts to explore cutting-edge developments in ultrasonics, from sonochemistry and materials synthesis to medical and industrial applications. Featuring keynote lectures, technical sessions, and networking opportunities, the conference fostered innovation and collaboration in this rapidly evolving field.

Eugenia Mazzara, a post-doctoral fellow at Teagasc, presented her work titled ‘’Effect of ultrasound treatment on mannitol crystallisation from Alaria esculenta seaweed extract.” She demonstrated how she had successfully optimised the ultrasound-assisted crystallisation process, which enhanced mannitol recovery from extracts obtained from the brown seaweed, Alaria esculenta. Seaweeds are a low-trophic species, and this work supports its valorisation as a sustainable marine resource for mannitol production, a naturally derived sugar replacer.

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Joncer Naibaho, a post-doctoral fellow at Teagasc, presented his research on the valorisation of shrimp shells through the development of low-energy pre-treatment processes for shell dissolution and drying. From these pre-treated shells, he extracted chitin and chitosan using ultrasound, achieving higher quality materials than those found in commercially available alternatives. This work holds strong industrial relevance, as chitin and chitosan are versatile biopolymers with a wide range of applications, particularly in food packaging and in biomedicine.

Wenrui Dong, a PhD student at Teagasc, presented her research on ultrasound–microwave assisted valorisation of salmon filleting by-products, focusing on oil biorefinery and encapsulation using polyphenol extracts. She focused on how ultrasound and microwave can enhance yield, emulsion formation, and stability of DHA/EPA-rich salmon oil over the conventional heating process. This innovative approach offers potential for reduced energy consumption and shorter processing times while maintaining oil quality. To top it all off, Wenrui Dong was awarded one of the ULTRASONICS 2025 "**Best Shotgun Communication**" prizes.

Rahel Suchintita Das, a research officer at Teagasc, showcased her work on producing polysaccharide–protein hybrid composites from the brown seaweed Alaria esculenta using ultrasound-assisted extraction. It built on her comparative study between ultrasound with other advanced technologies, including high-pressure processing, microwave treatment, and pulsed electric fields, to evaluate their impact on yield and functional properties of the composites. Her findings help identify which technology is best suited to enhance specific properties such as solubility, emulsification, and foaming abilities, making the composites highly promising for applications in the food, packaging, and allied industries, where bio-based functional ingredients are in growing demand.

The strong presence of TEAGASC researchers at ULTRASONICS 2025 highlights the organisation's commitment to advancing sustainable, science-driven solutions through innovative processing technologies. From seaweed and shrimp shells to salmon by-products, their work showcases how marine and food industry side-streams can be transformed into high-value, functional ingredients. The recognition awarded to Wenrui Dong further underscores the quality and relevance of the team's research. As the IMPRESS project continues to explore pathways for circular bioeconomy innovation, contributions like these demonstrate the real-world potential of combining scientific excellence with environmental responsibility.

About IMPRESS

IMPRESS is a Horizon Europe-funded project dedicated to developing sustainable foods and value chains by applying innovative methods to marine and freshwater-based ingredients.

Notes to editors:

At a glance - Key facts and figures

- **Instrument**: Horizon Europe
- **Total Budget**: € 6,725,261.25
- **Duration**: 4 years, 2023-2027
- **Consortium**: A total of 14 partners from 7 countries

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