

The Chancellor of Ghent University has the honour of inviting you to attend the public defense of the doctoral dissertation of

MSc. Yang Zou

Title of the doctoral dissertation:

The valorization potential of biologically recovered chitin and bioactive hydrolysates from marine crustacean processing side streams

The public defense will take place on 11/05/2021 at 15h30.

However, due to the strict government restrictions related to **COVID-19**, the public defense will be organized in such a way that you can follow the live defense online using [this link](#), or <https://www.fbw.ugent.be/doctorate/YangZou>.

Please dial in 5 minutes before the defense and turn off your camera to not disturb the jury members and the candidate during the defense.

We also kindly request you to take a photograph of you and the live-stream during the presentation and send it to yang.zou@ugent.be. This will be very much appreciated.

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Abstract of the doctoral research

Although marine crustaceans have a high economic value and a significant nutritional value, a considerable proportion of marine crustaceans cannot be directly consumed by humans, ending up as processing side streams in the seafood industry. These side streams still contain valuable molecules such as proteins, chitin, and carotenoids. Compared to traditional chemical methods, greener technologies are the alternatives to extract those compounds.

The aims of this PhD thesis are: (1) to investigate the feasibility of marine crustaceans processing side streams (MCPS) valorization via biological processing techniques, namely enzymatic hydrolysis and fermentation, and (2) to characterize the fractions obtained after enzymatic hydrolysis and fermentation. In this PhD thesis, enzymatic hydrolysis with commercial proteases and fermentation with selected marine bacteria to valorize MCPS were studied. The significant findings are listed as follows: the brown crab processing side streams hydrolysates obtained after biological treatments expressed good antioxidant activity. Especially hydrolysates of fermentations using specific *Pseudoaltermonas* strains showed potent antibiofilm and anthelmintic activities. The chitin present in the press cakes had a high degree of acetylation, degree of deproteinization and thermal stability. The wet pellet fractions obtained after enzymatic hydrolysis from Northern shrimp processing side streams contained a high amount of carotenoids. These findings demonstrate that bioprocessing techniques are promising for the comprehensive valorization of MCPS.

Brief Curriculum Vitae

Yang Zou was born in 1982, Harbin, China. After graduated from medical school in 2006, he worked as a surgeon at the Department of General Surgery, the Fifth Hospital of Harbin, China. In 2012 - 2014, he followed the Master program in Human Nutrition at Ghent University. In his master thesis, he studied the topic: "Impact of different preparations on the mutagenicity of meat products during digestion as evaluated by the AMES-test". After graduation, he worked as a researcher on two projects related to food waste valorization: VALORIVIS and VALORFOOD at UGent Campus Kortrijk. In 2017, he started his PhD at research unit VEG-i-TEC, UGent Campus Kortrijk and ILVO based on an European project, BlueShell: Exploring Shellfish By-Products as Sources of Blue Bioactives. During the PhD-study, he successfully guided two bachelor students and has three papers published in peer-review international journals.