

Study on Biomaterials Derived from Natural Products Using Low-Temperature Plasma

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Abstract

The global pharmaceutical market continues to grow due to aging and the increase in infectious diseases, and the demand for new drug development is increasing to respond to this. Research on new drug development is conducted through selection of extracts derived from natural products or material synthesis methods using physical/chemical/biological techniques. Recently, biomaterials are being studied using low-temperature plasma technology targeting natural product-derived extracts. This technology uses active species generated by plasma to modify the molecular structure of organic substances, and has the advantage of being easy to handle and having less chemical residue compared to chemical processes. In addition, it can be used to improve the extraction yield of functional ingredients, remove pigments, and synthesize new functional substances. Biomaterial research using low-temperature plasma targeting natural product-derived extracts will be introduced.

CURRICULUM VITAE



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Education History

[Doctorate]	2023	Department of Physics, Chungnam National University
[Bachelor]	2011	Department of Physics, POSTECH



Professional Background

2013-present	Head of Plasma Strategy Technology Division, Korea Institute of Fusion Energy
2011-2013	Postdoc of plasma heating team in KSTAR, National Fusion Research Center
2007-2011	Research students of plasma heating team in KSTAR



Selected Awards and Honors

1.	2023	Safety Excellence Award from Korea Fusion Energy Research Institute
2.	2022	National Science and Technology Research Council Foundation Anniversary Award



Selected Publications

1. S.H. Ki, et. al., Sci. Rep. 14 (2024) 19749
2. S.H. Ji, et. al., Chemosphere 349 (2024) 140763
3. J.H. Bae, et. al., Chem. Eng. J. Adv. 20 (2024) 100647
4. H. Song, et. al., LWT 207 (2024) 116637
5. S. Park, et. al., Sci. Rep. 12 (2022) 15396