Macroalgae as a promising resource for natural drug development

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Abstract

Statement of the Problem: Awareness towards natural products drug discovery is important for new generations as a tool for their heatlh care. We know that for the major lethal diseases, there are no truly effective drug treatments. In addition, drug resistance to existing chemotherapeutic agents for fungal and bacterial infections, AIDS, cancer, and malaria is increasing. Because of the challenges for health care in the future, development of natural products as medicinal agents is important, particularly in developing countries.

Findings: Potential medicinal plants which show promising potentials are seaweeds (macroalgae). Furthermore, macroalgae abundance is high, especially in tropical oceans such as Indonesia. In our previous work, we discovered potential anticancer effects of a polymer carrageenan found in red macroalgae Chondrus crispus. However, we intend to explore more medicinal potential from macroalgae, particularly wild species macroalgae.

Conclusion & Significance: Based on our current findings, we discovered that various macroalgae show diverse biological properties which are potential to be applied to prevent cancer or radiation effects from UV. Further advanced research and investigations of macroalgae biological activities would be reasonable for development of macroalge based natural drugs for potential medicinal applications.

Recent research

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2. Prasedya E.S., Miyake M., Kobayashi D., & Hazama A. 2017. Increased cytotoxicity of degraded carrageenan potentially mediated by anion channels Proceedings of the **94th Physiological Society Meeting of Japan**
3. Prasedya E.S., Miyake M., Kobayashi D., & Hazama A. 2015. Cytotoxic effects of Sulfated Polysacharide Carrageenan in Human cancer cells; Proceedings of the **8th Euro Biotechnology Conference**
4. Prasedya E.S.,Yuya I., Miyake M., Kobayashi D., & Hazama A. 2015. The multifunctional SLC26 family as candidates for toxic anion transporters; Proceedings of the **92th Physiological Society Meeting of Japan**
5. Yuya I., Prasedya E.S., Megumi K., Kobayashi D., Hazama A. 2014. Cytotoxicanions damaged Hela cells via volume regulatory chloride channel; Proceedings of the **The 91st annual meeting of Physiology society of Japan**
6. Prasedya E.S.,Tan-Ji., & Lim P.E. 2012. Phylogenetic studies of *Kappaphycus* and *Eucheuma* in coastal areas of Indonesia; Proceedings of the **South China Sea Conference 22nd October Kuala Lumpur**



Photograph

Biography

Dr Eka Sunarwidhi Prasedya has his expertise in investigation of macroalgae or more known as seaweeds. During his master studies in Malaya University Malaysia, he studied a lot of macroalgae phylogeny and molecular taxonomy. However, during PhD in Fukushima Medical University Japan, he began exploring potential medicinal properties of macroalgae. As macroalgae are widespread and highly abundant in Indonesian coastal waters. There is still a lot to be investigated from macroalgae diverse biological activities. High availability of macroalgae in Indonesia could be promising for improving the health of people in Indonesia as a developing country.

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