

## Development of high value added algal products

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In the course of research on CO<sub>2</sub> reductions from DENSO's factories for environmental protection, we came across microalgae which grow ten times faster than land plants by absorbing CO<sub>2</sub> actively and convert it into oils. DENSO was fascinated by their abilities and has been involved in the algal research since 2008, focusing on two algal species that are *Botryococcus braunii* and *Pseudochorisisstis ellipsoidea*. We were quite interested in the oil of the non-oxygenated hydrocarbons as biofuels which *B.braunii* generates. In the process developments of getting pure oil, we have astonishingly discovered that the pure oil has excellent moisturizing properties. With this natural oil, DENSO has successfully formulated a hand cream, named "moina" that is gentle to the skin and kind to the earth.

On the contrary, though the oils which *P.ellipsoidea* produces are the common triacylglycerols (TAGs), it is easy to cultivate in the open air because of the acidic medium culture. We extracted oils and converted into fatty acid methyl esters (FAME) and successfully used as blended biofuels at the DAKAR Rally in 2016. After pilot research at Zenmyo Plant in Aichi Prefecture, a large-scale cultivation demonstration test has finally started in Amakusa, Kumamoto Prefecture in Kyusyu Island where the warm climate helps the algae grow. DENSO believes that the development of high value added applications is the key factor for the success in new business such as cosmetics, nutraceutical foods and aquaculture feeds. The progress of the development will be presented.

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