

# High-performance mega-saccharides derived from *Aphanothece sacrum*

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We have studied mega-polysaccharide, sacran, produced by cyanobacteria, *Aphanothece sacrum*, which is a freshwater unicellular cyanobacterium, to demonstrate that sacran contains carboxyls and sulfate groups<sup>1</sup>. Furthermore the constituent sugars of the sacran were mainly determined as Fuc, Rha, Xyl, Man, Glc, Gal. In addition, we confirmed that the sacran was supergiant with a high absolute  $M_w$  of  $2.35 \times 10^7$  g/mol.<sup>2</sup> The sacran showed very high zero shear viscosity (80 000 cps) and unique behavior in the presence of salts such as shear thickening. Furthermore, sacran absorbed very large quantities of water and saline (0.9 % NaCl aq), 6300-6400 and 2700-2800 times to the dry weight of the sacran.

## References

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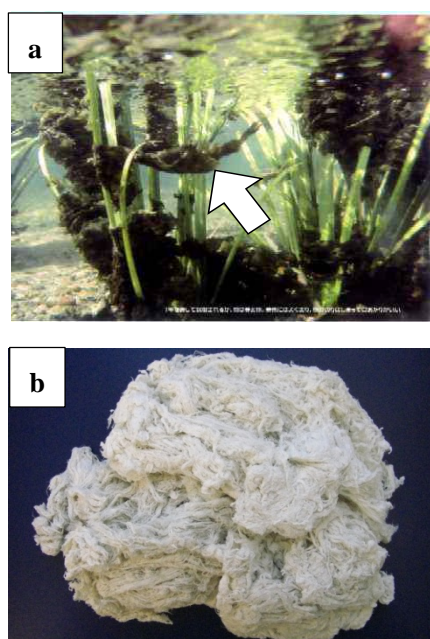


Fig.1 a) Figure of *Aphanothece sacrum* biomaterials. b) picture of extracted polysaccharides, sacran