Tiny crustacean has terrific teeth

Elastic protein helps copepods munch through shells.

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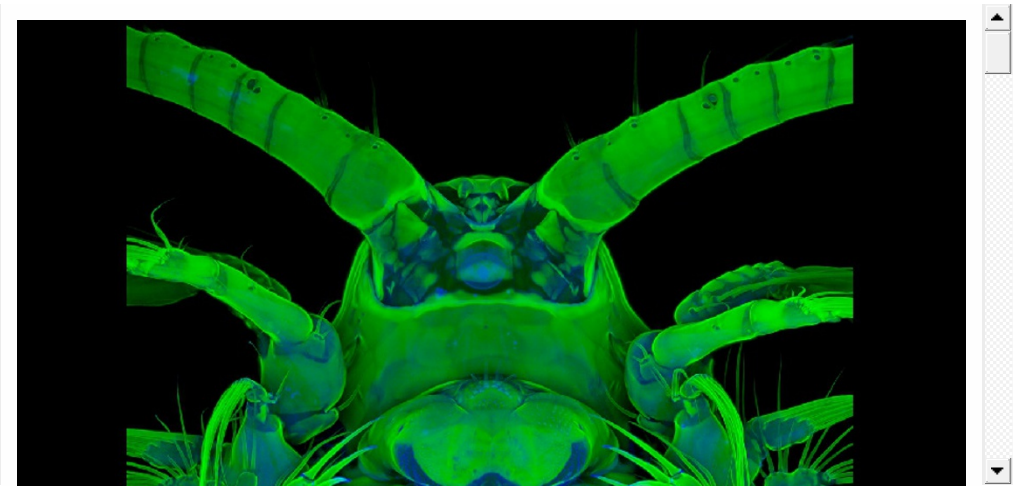

A rubbery protein in the jaws of microscopic crustaceans called copepods may have given them an evolutionary edge, allowing them to become the most numerous zooplankton in the world's oceans.

Researchers made the discovery while studying a species of copepod called *Centropages hamatus*. The soft and elastic protein, resilin, forms bearings that support the copepod's silica teeth, helping them to crush and mince hard-shelled algae called diatoms. The soft bearings may also reduce the risk of damage to the base of the copepod's jaw.

"We think that the structure of the teeth has co-evolved together with their shell diet," says Jan Michels, a marine biologist at the University of Kiel in Germany, who led the study. The results are published in *Scientific Reports* today[1]. But the structure of the copepod's jaw is not unique, says Michels: "In human teeth, there is a comparable structure, where there is a hard part, the tooth itself, on a soft one — the gums."

Resilin is also found in the legs of fleas and locusts, allowing them to jump, and in dragonfly wing joints, allowing them to pivot and flap. Mark Pottek, a neurobiologist at the University of Oldenburg in Germany who has worked on copepod taxonomy, says that resilin is remarkably hard-wearing in such situations, owing to its elastic properties. "Maybe that's also why we see the protein in copepod teeth," he says.

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References

1. Michels, J., Vogt, J. & Gorb, S. N. *Sci. Rep.* **2**, 465 (2012).