Supplementary material

Structure and composition of the cuticle in the inner claw of *Ligia pallasii*.

Figure S1: High angle annular dark field scanning transmission electron microscopy (HAADF-STEM) image of the mineralized endocuticle of the inner claw showing the axial orientation of chitin-protein fibers and a corresponding alignment of calcium phosphate particles.

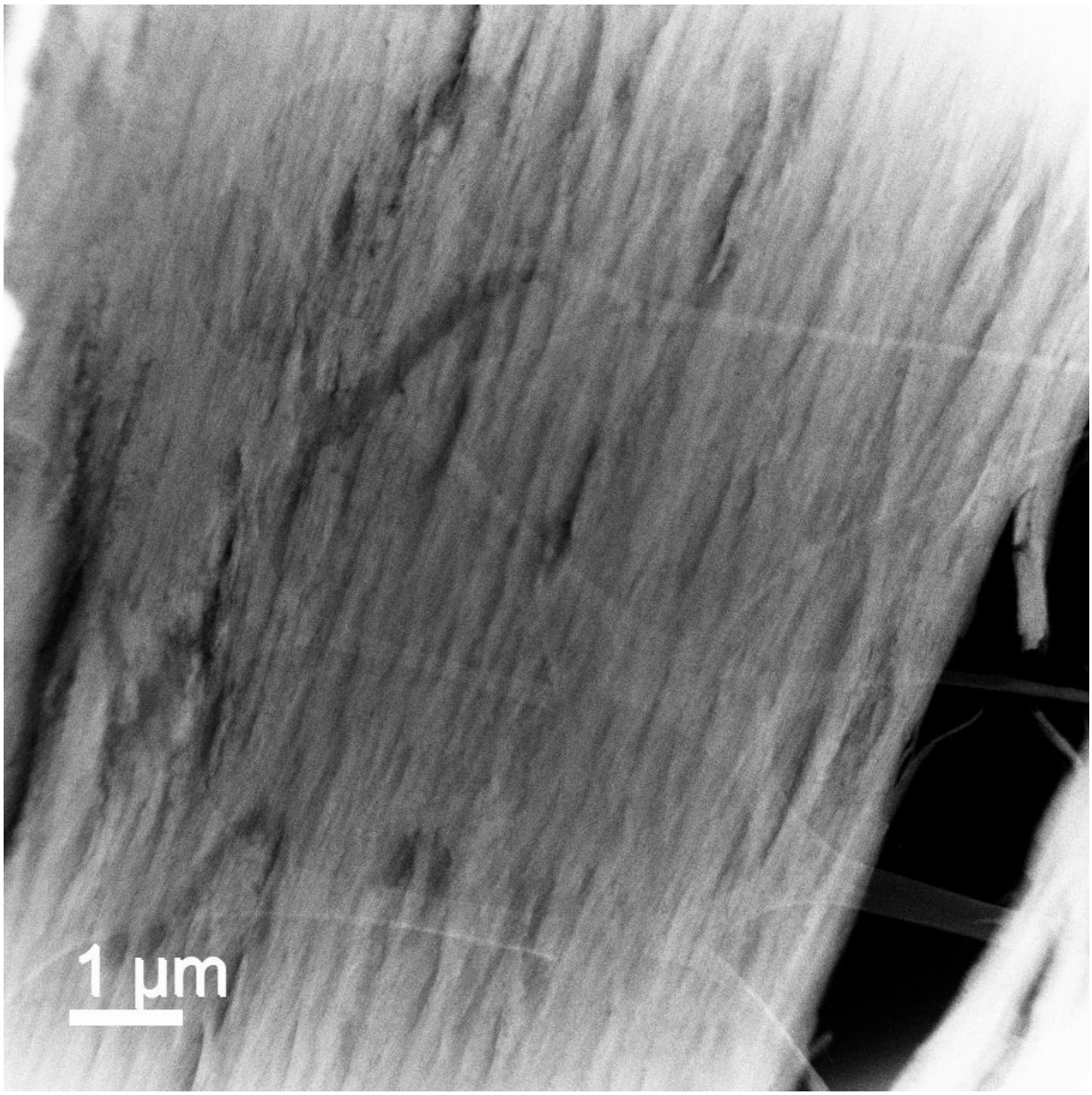

Figure S2: HAADF-STEM image of the non-mineralized exocuticle of the inner claw in longitudinal section with visible axial orientation of the chitin-protein fibers and oblique striations. The left side of the image is directed towards the tip of the claw.

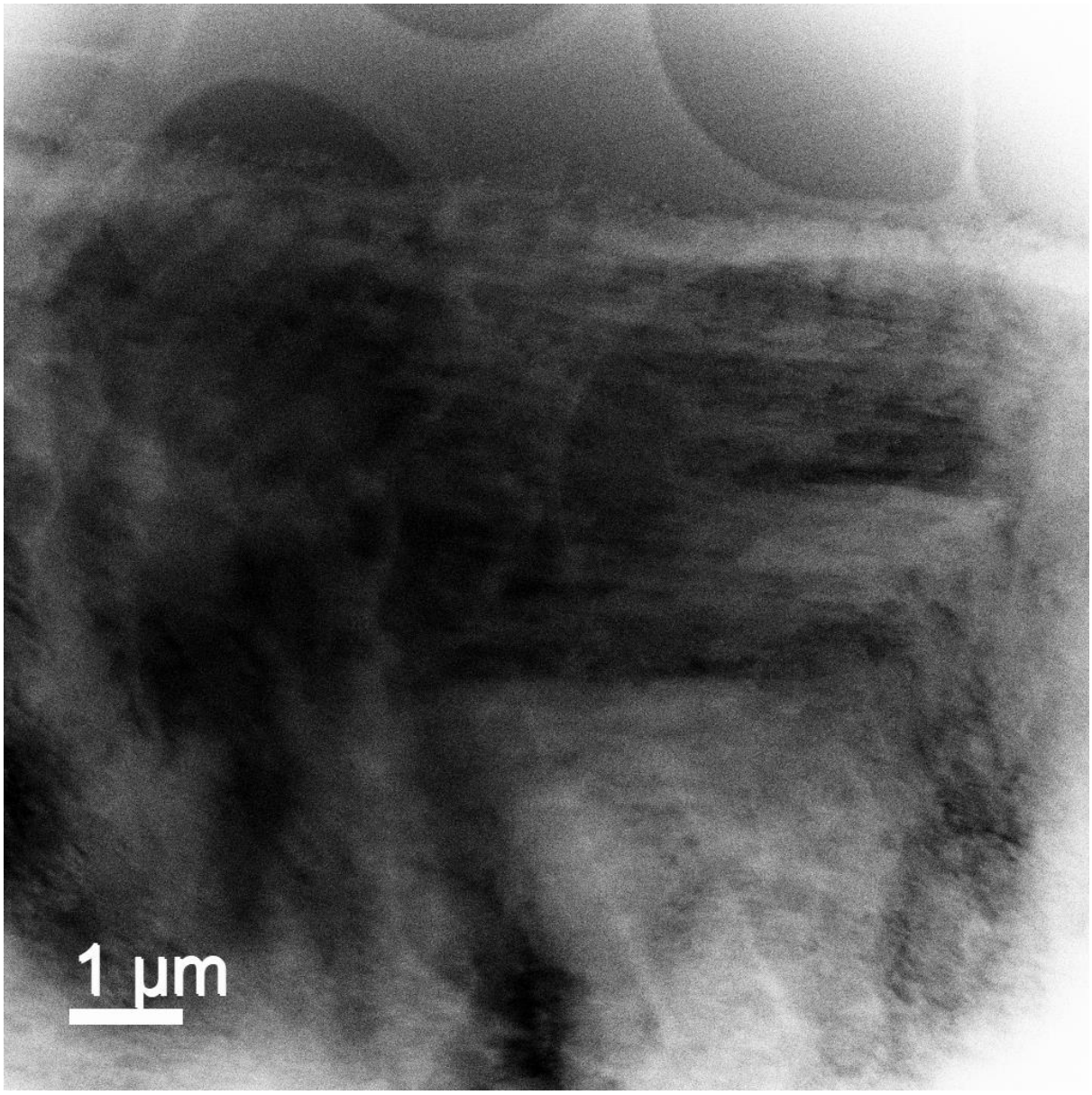

Figure S3: Energy dispersive X-ray (EDX) spectrum of the mineralized endocuticle of the inner claw. The Cu signal originates from the copper support grid.

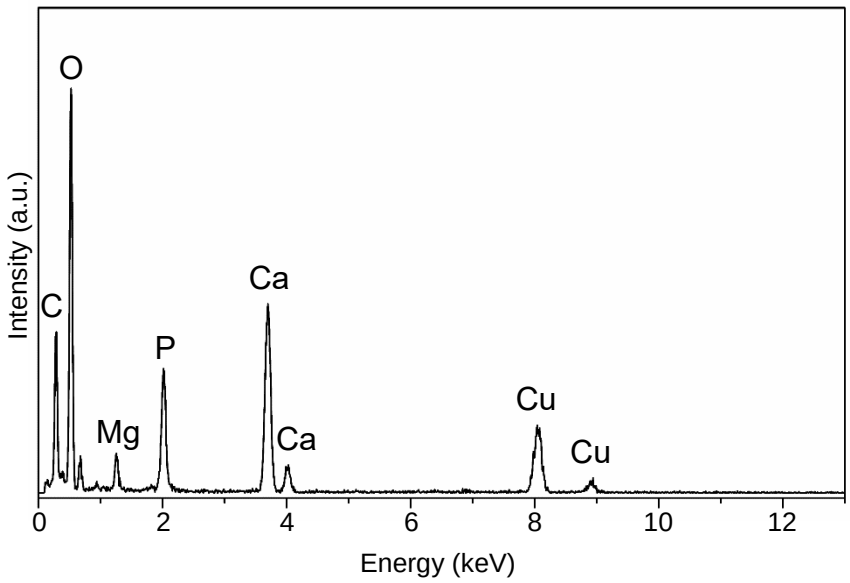

Figure S4: EDX spectrum of the non-mineralized exocuticle of the inner claw.