Electronic Supplementary Material (ESI) for Soft Matter.

SUPPORTING INFORMATION

Biodegradable floating hydrogel baits as larvicide delivery systems against mosquito

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1) Swelling degree of hydrogels with Bti and yeasts

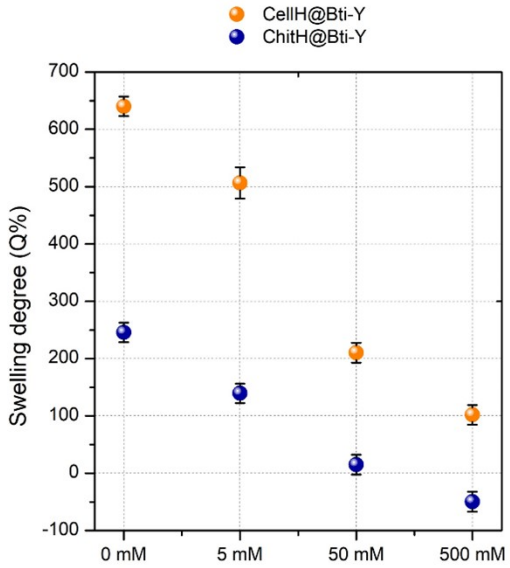

Figure S1: Swelling degree measurements of CellH and ChitH with active ingredients (Bti and yeasts) at increasing ionic strength (0 mM, 50 mM, 50 mM and 500 mM).

2) Mechanical properties of hydrogels with Bti and yeasts

Table S1: Elastic modulus, compressive strength and ultimate compression of CellH and ChitH with active ingredients (Bti and yeasts).

	Modulus ($N \cdot m^{-2}$)	Compressive strength (kPa)	Ultimate compression (mm)
Cell-H@Bti-Y	1.9 ± 0.2	15.1 ± 0.7	0.7 ± 4.8
Chit-H@Bti-Y	12.8 ± 1.2	5.8 ± 0.7	0.3 ± 0.02

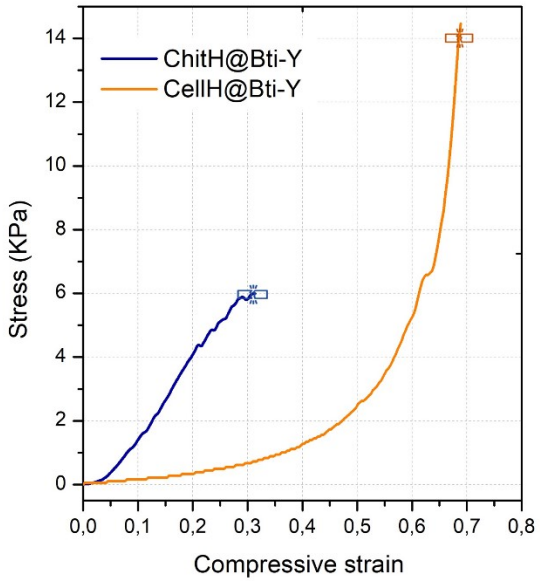

Figure S2: Representative stress-strain curve of a CellH and ChitH with active ingredients (Bti and yeasts).

3) Swelling degree of hydrogels in mineral water

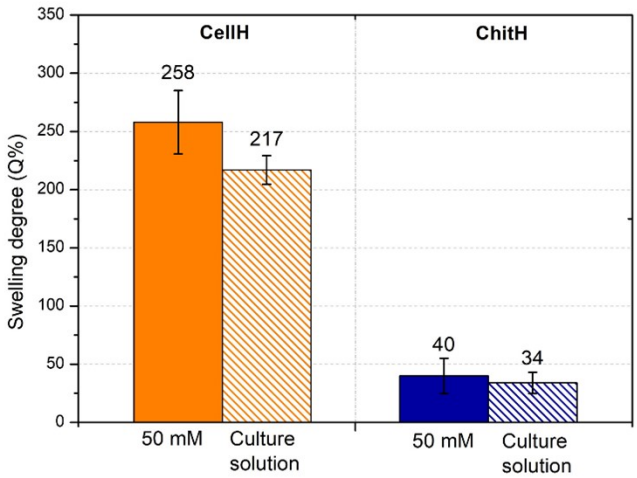

Figure S3: A) Swelling degree (Q%) of CellH and ChitH at 50 mM NaCl and in larvae culture solution

4) Scanning electron microscopy (SEM)

SEM images were acquired with FE-SEM Zeiss Supra 40 equipped with the GEMINI column, operating at an accelerating voltage of 5 kV, in order to minimize charging effect of the polymeric samples. All hydrogels were left dry air for 48h prior imaging.

CellH samples (**Figure S4, A**) presented a quite smooth surface compared to the same samples filled with Bti and yeasts (CellH@Bti-Y) (**Figure S4, B**), where instead aggregates can be seen spread all over the surface. The nature of such particulate cannot be determined with certainty but is well plausible to be attributable to Bti proteins clustered together and/or cellular debris.
ChitH samples (**Figure S4, C**) showed very peculiar crystalline structures on their surface. We hypothesized that these artifacts might be due to the drying process, because in the presence of active ingredients (ChitH@Bti-Y) (**Figure S4, D**) a much smoother surface was displayed instead. However, as for the CellH@Bti-Y samples, aggregates can be observed to a minor extent also on the ChitH@Bti-Y samples.

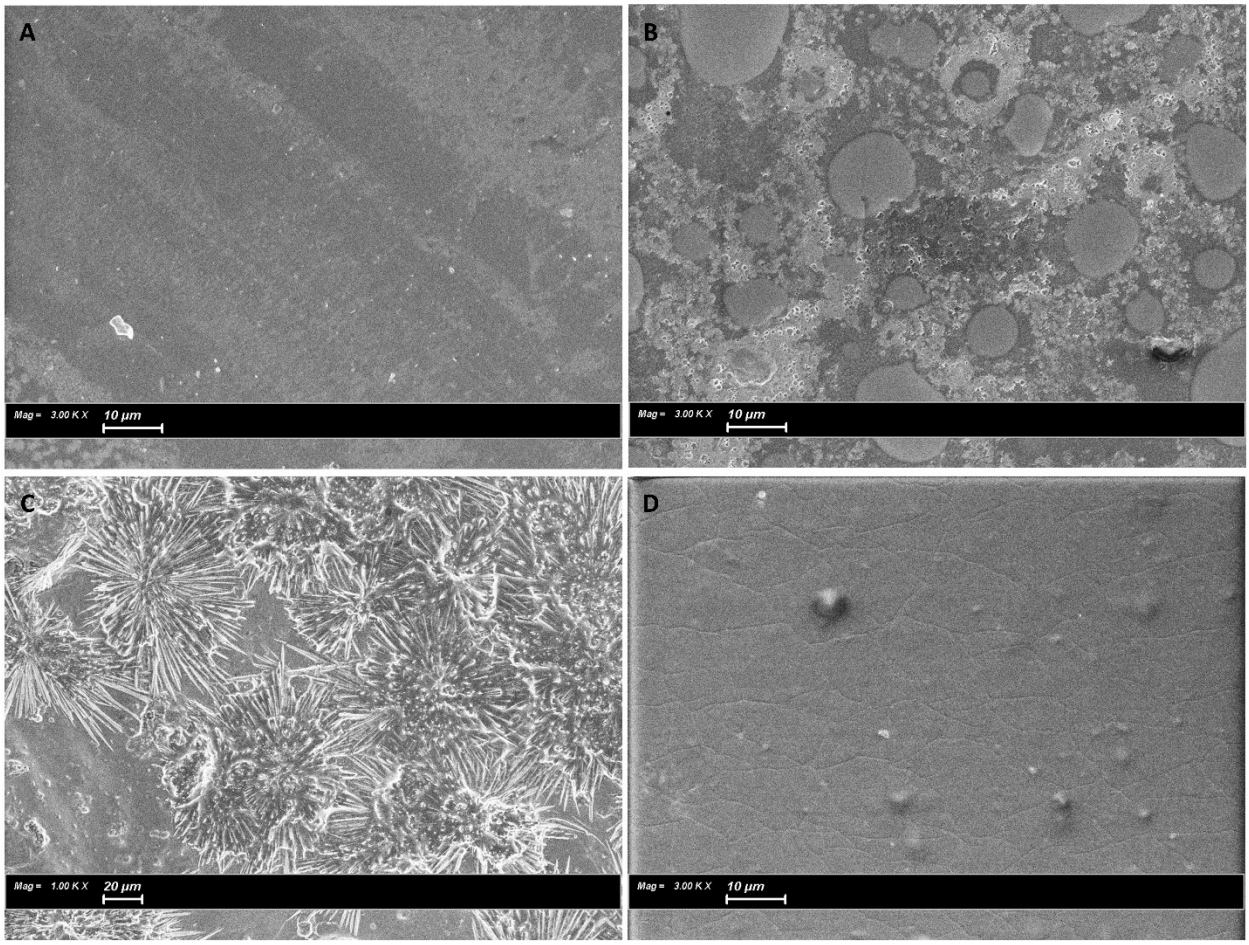

Figure S4: SEM images of A) CellH; B) CellH@Bti-Y; C) ChitH; D) ChitH@Bti-Y.