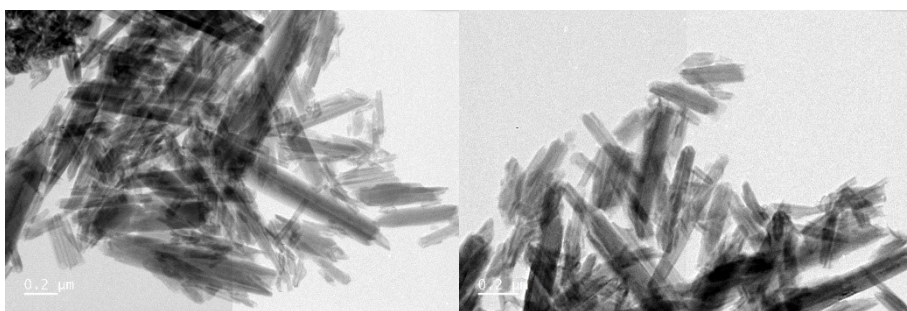
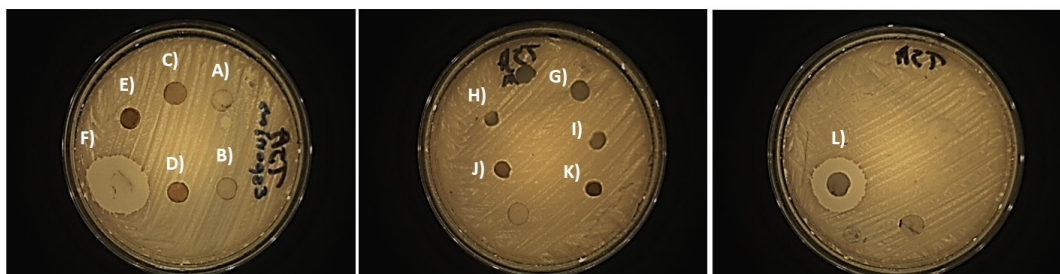


## Supplementary information

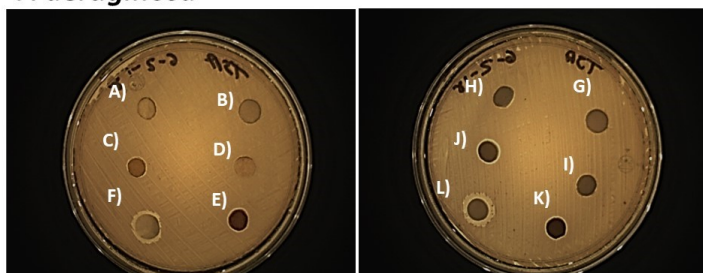


**Figure S1.** Representative TEM micrographs of pristine halloysite nanotubes.

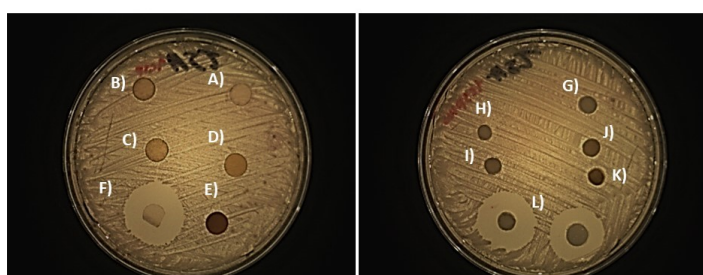
### *E. coli*



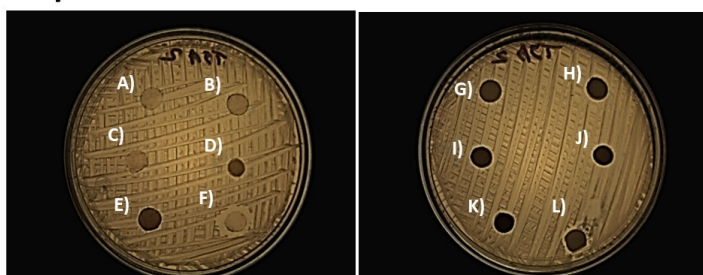
### *P. aeruginosa*



### *S. aureus*



### *S. epidermidis*



**Figure S2.** Inhibition halos of CTS-AgNP and CTS-HNT-AgNP sponges against Gram-negative and positive bacteria, each sponge is represented on the images as A) p-CTS, B) 01-CTS-AgNP, C) 02-CTS-AgNP, D) 05-CTS-AgNP, E) 10-CTS-AgNP, F) p-CTS sponge impregnated with chlorhexidine gluconate antiseptic, G) CTS-HNT, H) 01-CTS-HNT-AgNP, I) 02-CTS-HNT-AgNP, J) 05-CTS-HNT-AgNP, K) 10-CTS-HNT-AgNP and L) CTS-HNT sponge impregnated with chlorhexidine gluconate antiseptic. The results reported in the image are representative of one of the three independent experiments.

**Table S1. Inhibition halos of the nanocomposite sponges against Gram-negative and positive bacteria.**

Sponge	Inhibition zone (mm)			
	<i>E. coli</i>	<i>P. aeruginosa</i>	<i>S. aureus</i>	<i>S. epidermidis</i>
p-CTS	8.00 ± 0.00	8.00 ± 0.00	8.01 ± 0.01	8.00 ± 0.00
01-CTS-AgNP	8.01 ± 0.03	8.00 ± 0.00	8.01 ± 0.01	8.04 ± 0.05
02-CTS-AgNP	8.04 ± 0.06	8.11 ± 0.08	8.02 ± 0.03	8.02 ± 0.02
05-CTS-AgNP	8.69 ± 0.36	9.15 ± 0.03	8.07 ± 0.02	8.21 ± 0.09
10-CTS-AgNP	9.09 ± 0.10	9.28 ± 0.01	8.04 ± 0.03	9.00 ± 0.10
p-CTS-CLG	27.1 ± 2.86*	17.3 ± 0.14*	30.1 ± 0.83*	19.9 ± 1.89*
CTS-HNT	8.06 ± 0.12	8.03 ± 0.06	8.00 ± 0.00	8.03 ± 0.06
01-CTS-HNT-AgNP	8.11 ± 0.10	8.09 ± 0.09	8.05 ± 0.04	8.04 ± 0.05
02-CTS-HNT-AgNP	8.33 ± 0.15	8.11 ± 0.11	8.71 ± 0.34	9.03 ± 0.05
05-CTS-HNT-AgNP	8.33 ± 0.10	9.78 ± 0.39*	9.01 ± 0.04	9.81 ± 0.31*
10-CTS-HNT-AgNP	8.57 ± 0.09	10.8 ± 0.98*	9.78 ± 0.73	10.1 ± 0.15*
CTS-HNT-CLG	24.5 ± 0.42*	15.6 ± 0.35*	29.4 ± 1.90*	15.4 ± 0.99*

CLG: chlorhexidine gluconate, \* The statistical difference was evaluated with Bonferroni's test at  $p \leq 0.05$  with respect to the p-CTS or CTS-HNT sponges, respectively.