One natural polyphenol-functionalized chitosan/gelatin sponge for accelerating hemostasis and infected wound healing

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Table S1. Characterization of the element content and PC grafting ratio of CGS and PCGS sponges.

	C%	H%	N%	N/C	grafting ratio (mg/g)
CGS10	40.21	6.91	6.73	0.17	-
PCGS10	41.66	6.71	6.25	0.15	81.8
CGS7	41.73	6.91	9.74	0.23	-
PCGS7	43.75	6.75	9.22	0.21	81.7
PC	52.29	4.92	0	0	-

Analysis. As shown in Table S1, after the crosslinking reaction with PC, the N/C ratio of PCGS10 and PCGS7 was 0.15 and 0.21, respectively, which were lower than the corresponding CGS sponges. This indicated that nitrogen-free PC were successfully introduced on PCGS10 and PCGS7. The PC content (x) of PCGS sponges can be calculated from the following equation:

$$\text{N/C ratio}_{\text{of PCGS}} = \text{N content}_{\text{of CGS}} * (1-x)/(\text{C content}_{\text{of PC}} * x + \text{C content}_{\text{of CGS}} * (1-x)).$$

PC content of PCGS10 was calculated to be 81.8 mg/g, and that of PCGS7 was 81.7 mg/g.

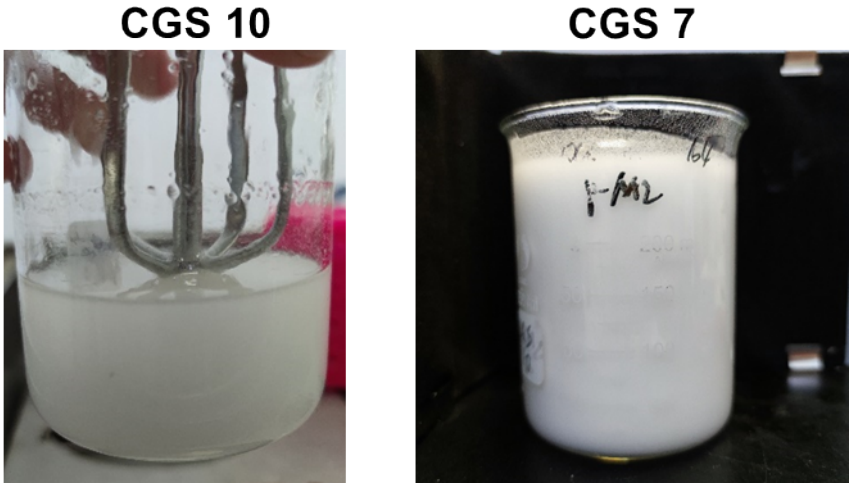

Fig. S1 Photographs of the solutions of CGS10 and CGS7 after vigorous stirring: only the latter generates highly foaming solution.

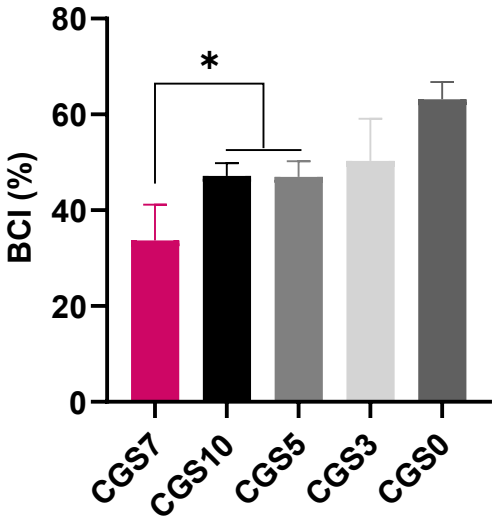

Fig. S2 BCI and PT/APTT values of whole blood treated with CGS sponges (mean ± SD, n = 3, *p < 0.05, , one-way ANOVA).

Analysis. BCI value corresponds with the percentage of RBCs not involved in blood clots, after the fixed incubation time for whole blood coagulation. As shown in Figure S2, CGS7 exhibited the lower BCI value than other four sponges, therefore indicating the higher in vitro hemostatic property of CGS7.

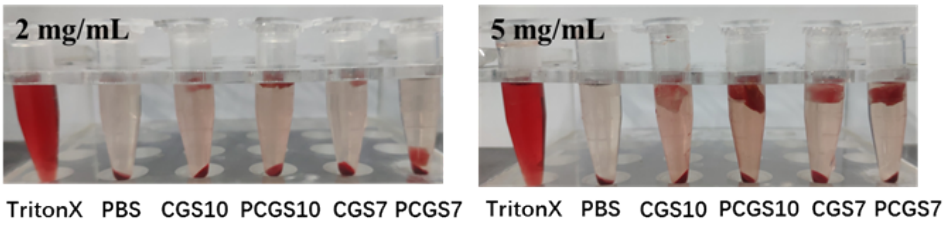

Fig. S3 Photographs of RBCs treated with Triton X, PBS and CGS/PCGS sponges.

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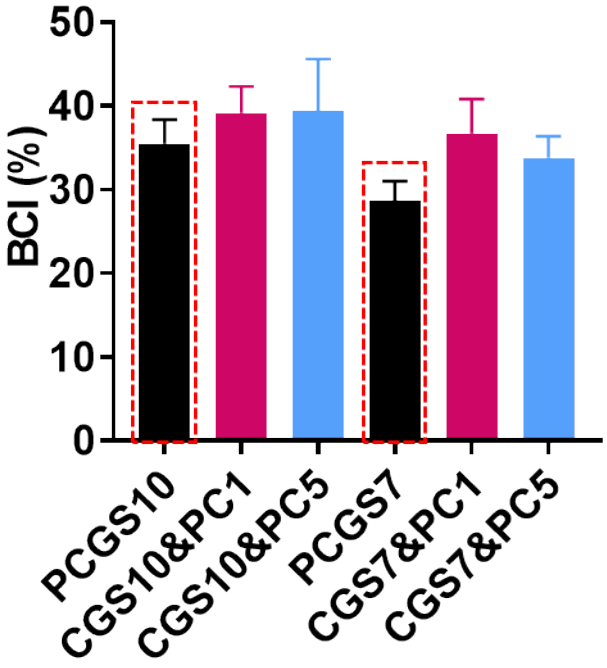

Fig. S4 BCI values of whole blood treated with CGS&PC and PCGS sponges (mean ± SD, n = 3).

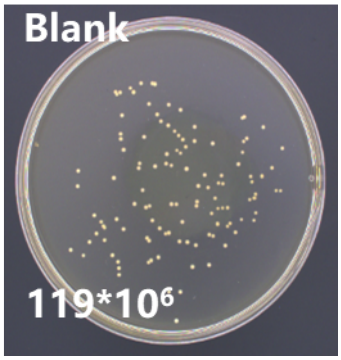

Fig. S5 Photograph of untreated bacterial culture in the Blank group (the colony number * dilution ratio in the inserts).

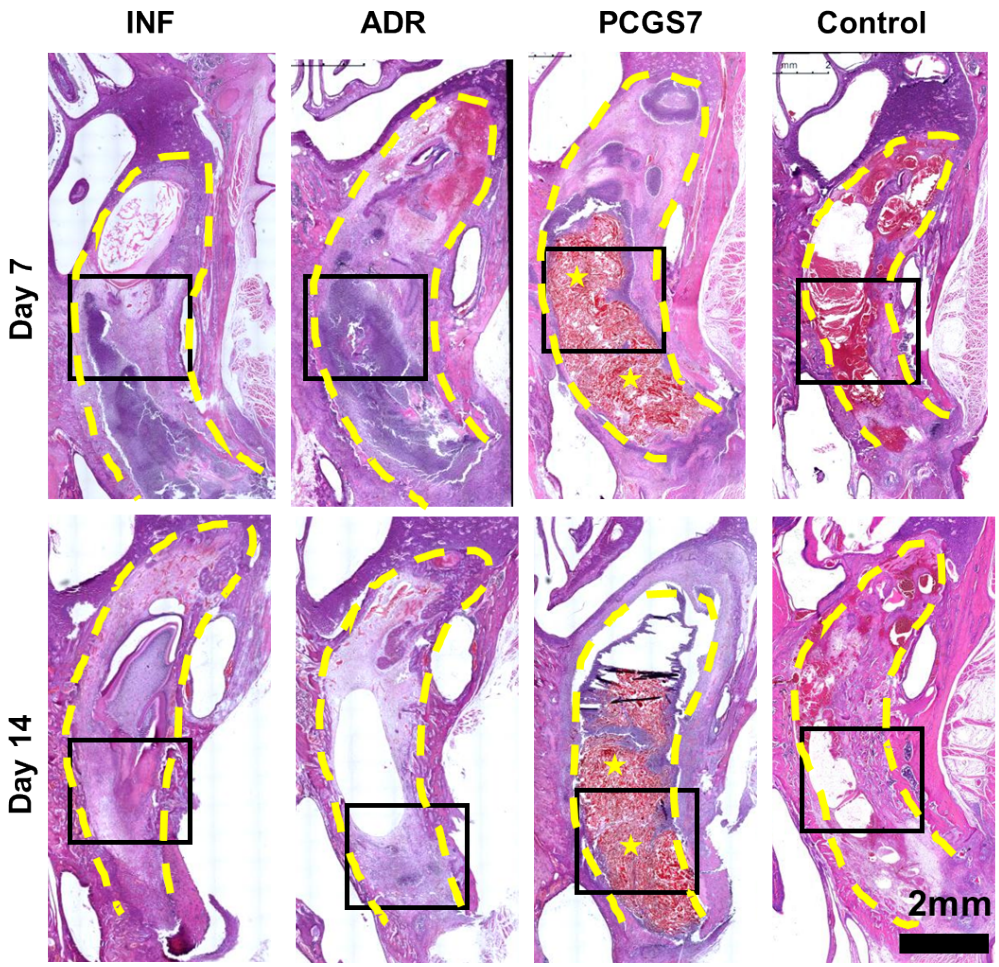

Fig. S6 Representative H&E staining analysis of harvested maxilla samples in the INF, ADR, PCGS7 and Control groups (dashed yellow line indicates the whole area of tooth socket, yellow pentagram indicates PCGS7 particles, black frame indicates the zoom/local area shown in Fig. 7b).

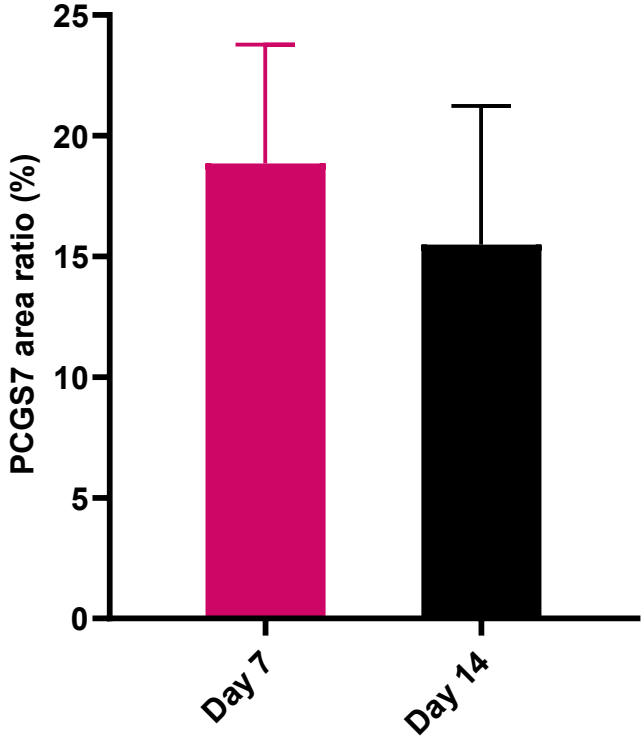

Fig. S7 Residual sponge area of harvested maxilla samples in the PCGS7 groups(mean ± SD, n = 4).