Influence of physicochemical characteristic of diatom frustules on hemorrhage control

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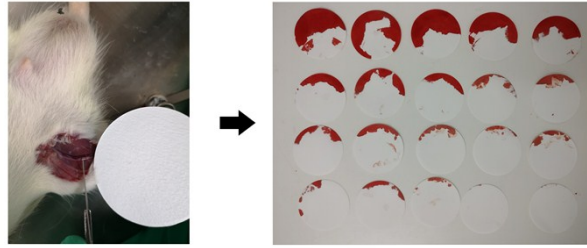Email: fengchao@ouc.edu.cn, hanjichang@ ouc.edu.cn

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Figure S1. Images of rat femoral artery model and the filter paper of QuikClot® group. Hemostasis material was applied once the right femoral artery was cut open by a scalpel. Then, the pre-weighed filter paper (replaced by a new one every 15 s) was put below the vessel incision to absorb blood. The wet filter paper was weighed immediately after being replaced.
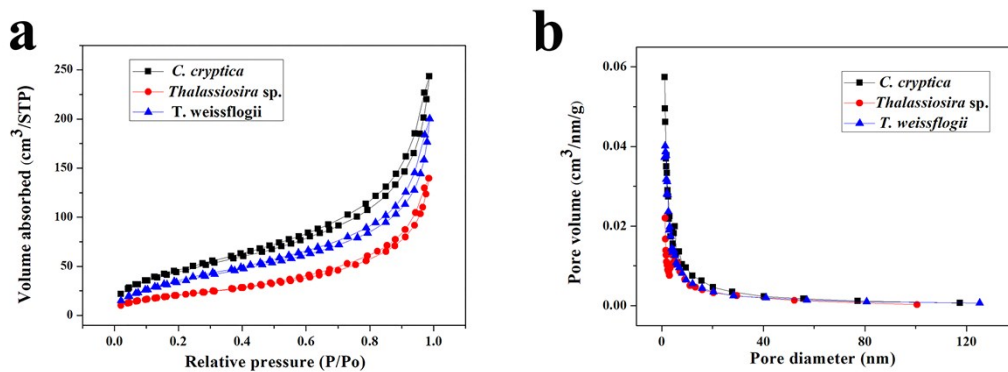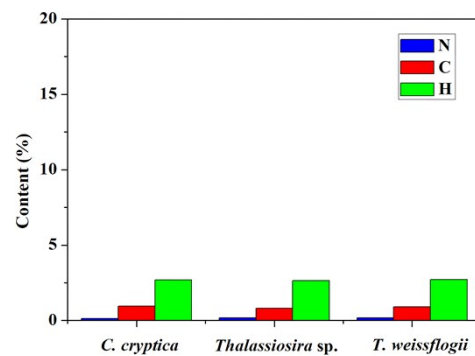

Figure S2. N_2 adsorption-desorption isotherm (a) and pore size distribution of

frustules (b).

Figure S3. Element analysis of diatom frustules after being treated by muffle furnace at 500 °C.
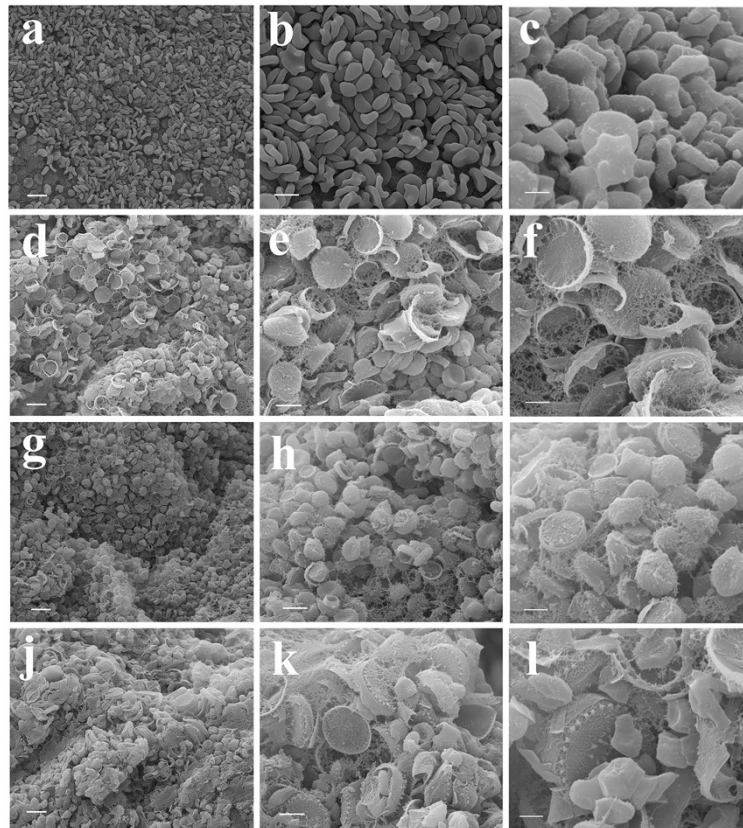
Figure S4. SEM imagines of blooding clot. a, b and c indicate the SEM image of blank control; d, e and f indicate the interface between RBCs and *C. cryptica*; g, h and i indicate that of *Thalassiosira* sp.; j, k and l indicate that of *T. weissflogii*. Scale bars in a, b, g and j are 10 µm; b, e, h and k are 5 µm; c, f, i and l are 2.5 µm.

Table S1. Physical characteristics of diatom frustules and QuikClot®.

Diatom species	Size (μm)	BET (m² g⁻¹)	Average pore diameter (nm)	BJH pore diameter (nm)	Total pore volume (cc g⁻¹)
C. cryptica	8-10	134.6	8.88	1.151	0.3763
Thalassiosira sp.	3-4	77.7	1.112	1.144	0.2159
T. weissflogii	10-12	169.5	9.18	1.333	0.3094
QuickClot®	4-7	17.1	2.573	3.414	0.1082

Table S2. Hemostasis time, re-bleeding time, and total amount of bleeding of all groups.

	No treatment	QuikClot®	*C. cryptica*	*Thalassiosira* sp.	*T. weissflogii*
Hemostasis time (s)	>900	210	310	150	180
Re-bleeding time (s)	ND	300	510	600	660
Total amount of bleeding (mg)	1568.07±357.11*	900.67±154.67	578.13±126.97	457.03±190.55	320±75.45

"*", values were determined at 900 s.