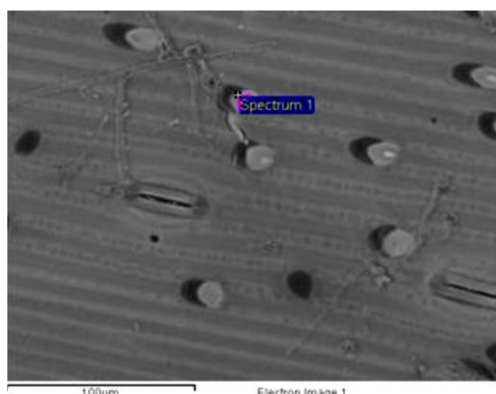
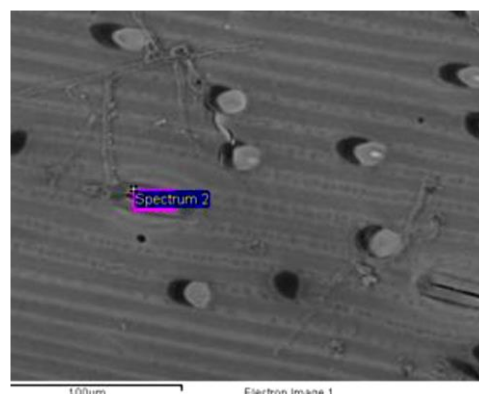


Supporting information



Siliceous structure:

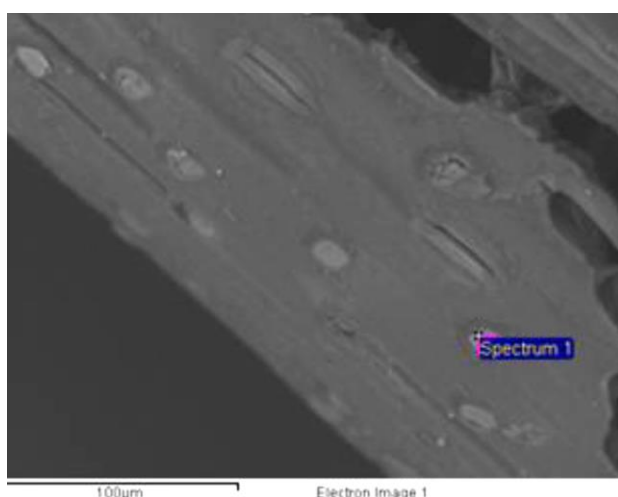
Element	Weight (%)
C	31.9
O	39.2
Si	28.4
In	0.5



Stomata:

Element	Weight (%)
C	43.3
O	41.6
Si	14.3
K	0.2
Al	0.4
Ca	0.2

Fig. S1. SEM/EDX results on wheat samples.



Element	Weight (%)
C	37.6
O	20.0
Na	0.4
Si	34.7
Cl	2.8
K	4.7

Fig. S2. SEM/EDX results on barley leaves.

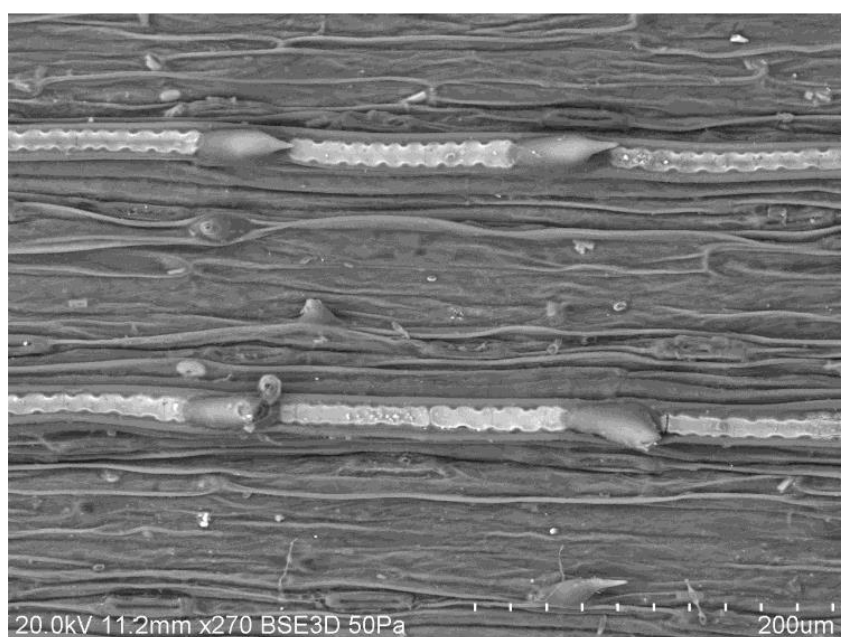


Fig. S3. SEM of barley leaves showing phytolith structures.

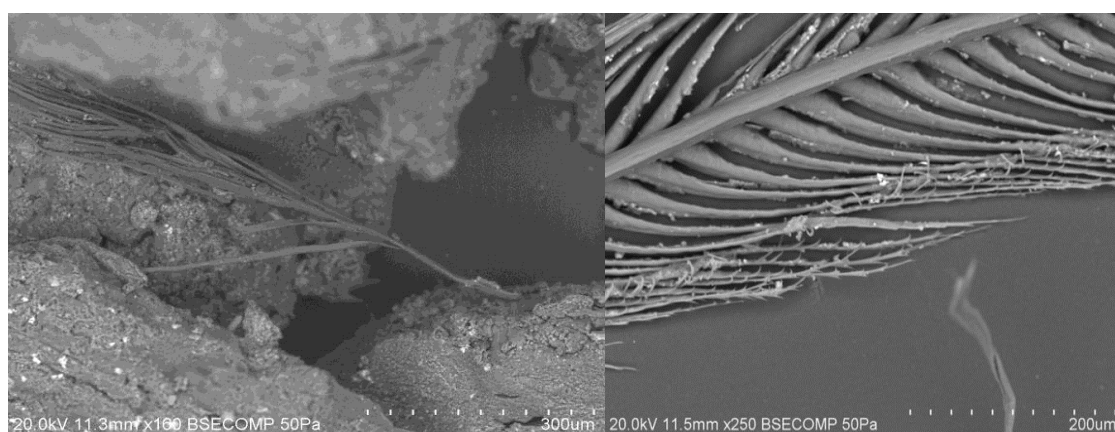
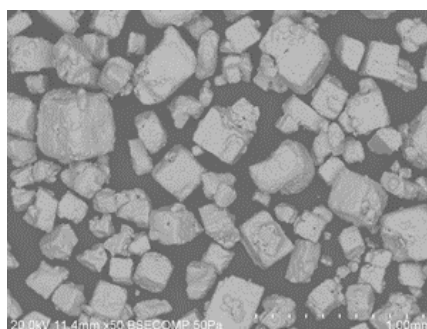


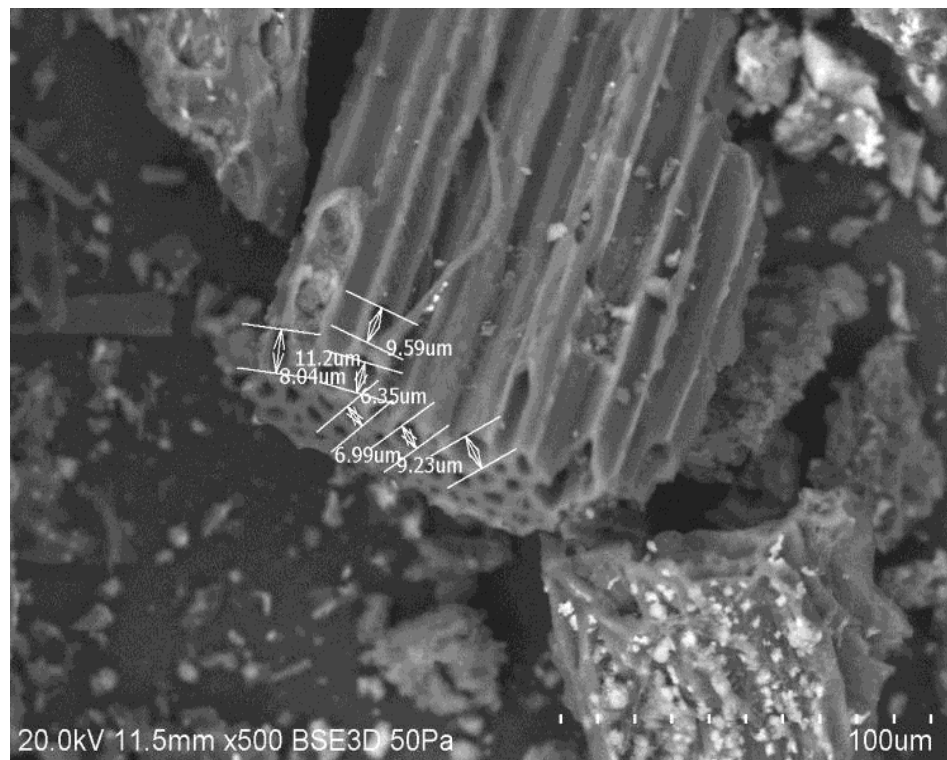
Fig. S4. SEM images: left) feathers from TF 135 (its provenience is PL); right) Actual feather.



Element	Weight%
Cl	47.6
K	51.8
Ni	0.1
W	0.6

Fig. S5. SEM/EDX results on pure KCl.

A



B

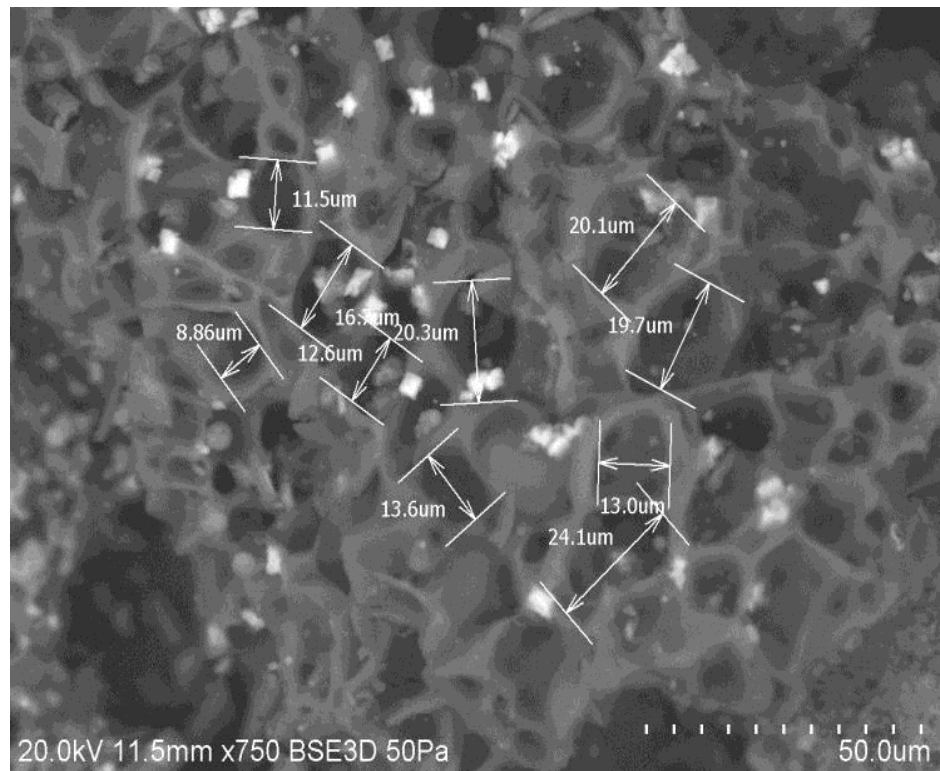
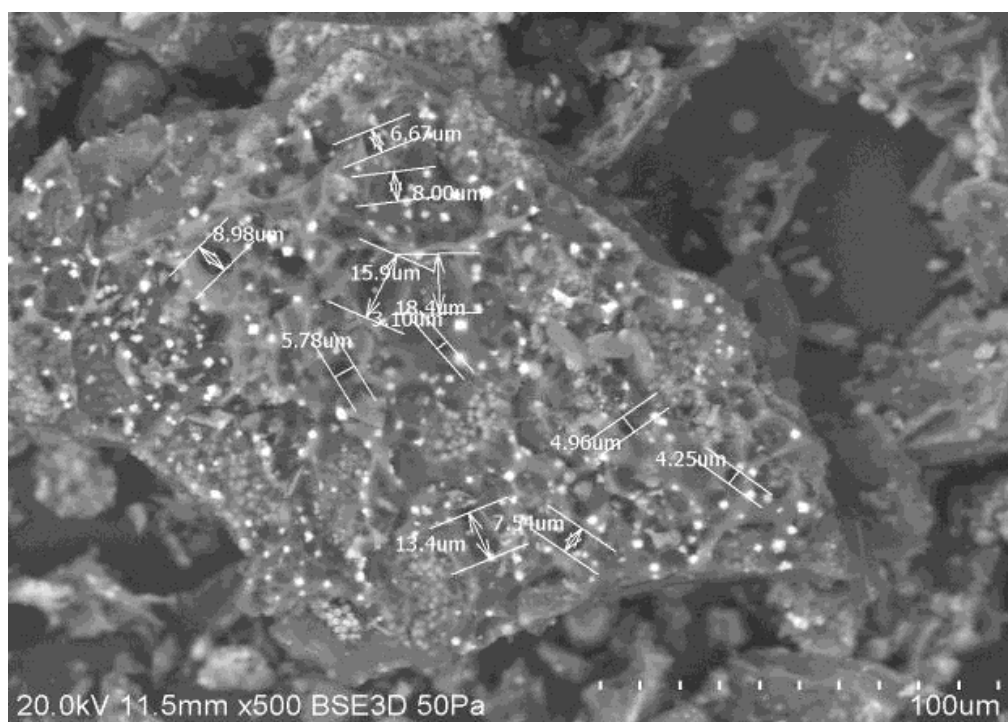


Fig. S6. SEM images of TOR 400 sample showing complex macroporosity: A) Pores formed by the open ends of cells; B) Size range of pores compared to crystal size.

A



B

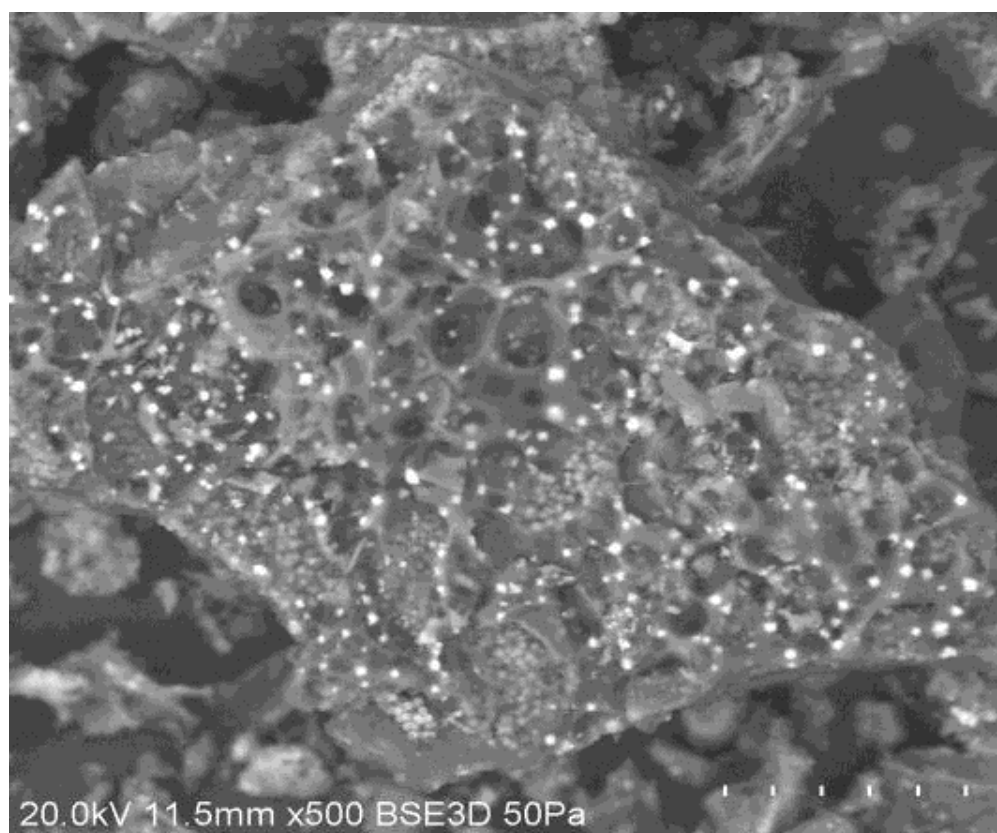
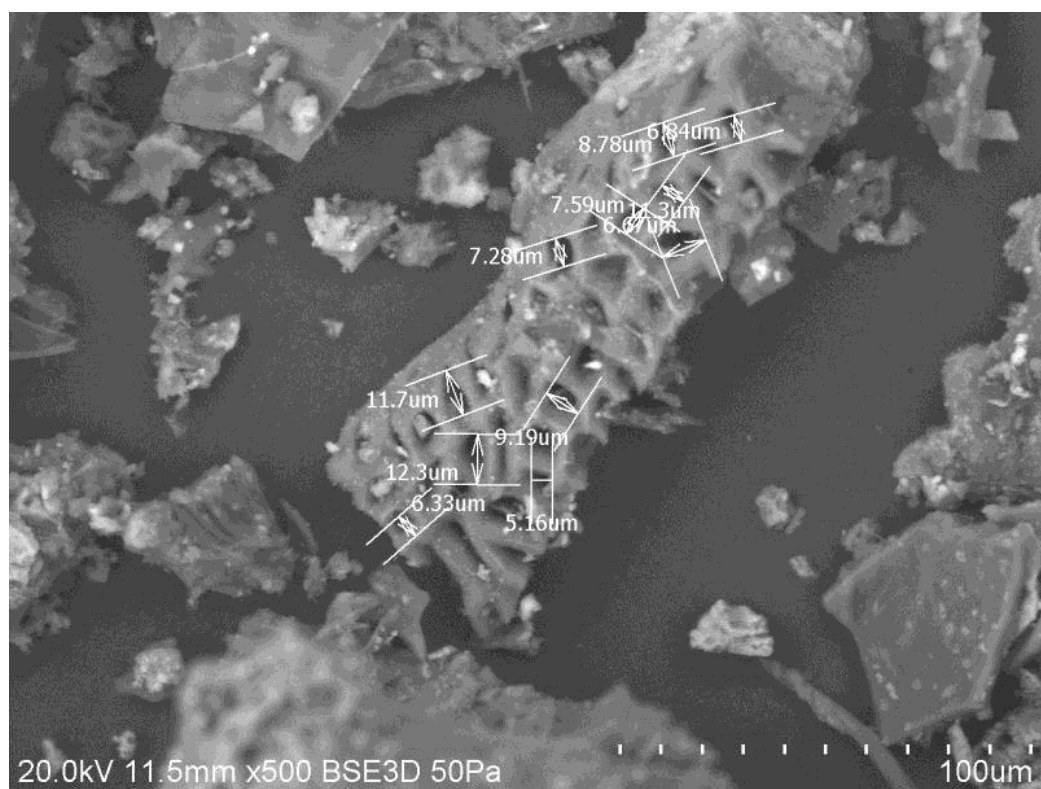


Fig. S7. SEM images of TOR 450 sample showing complex macroporosity: A) Pores size; B) Pore size at 2 x higher magnification.

A



B



Fig. S8. SEM images of TOR 500 sample showing complex macroporosity: A) True honeycomb porous structure with mean pore size of 7.9µm; B) Non-empty pores.



Fig. S9. SEM images of TOR 550 sample showing complex microporosity.

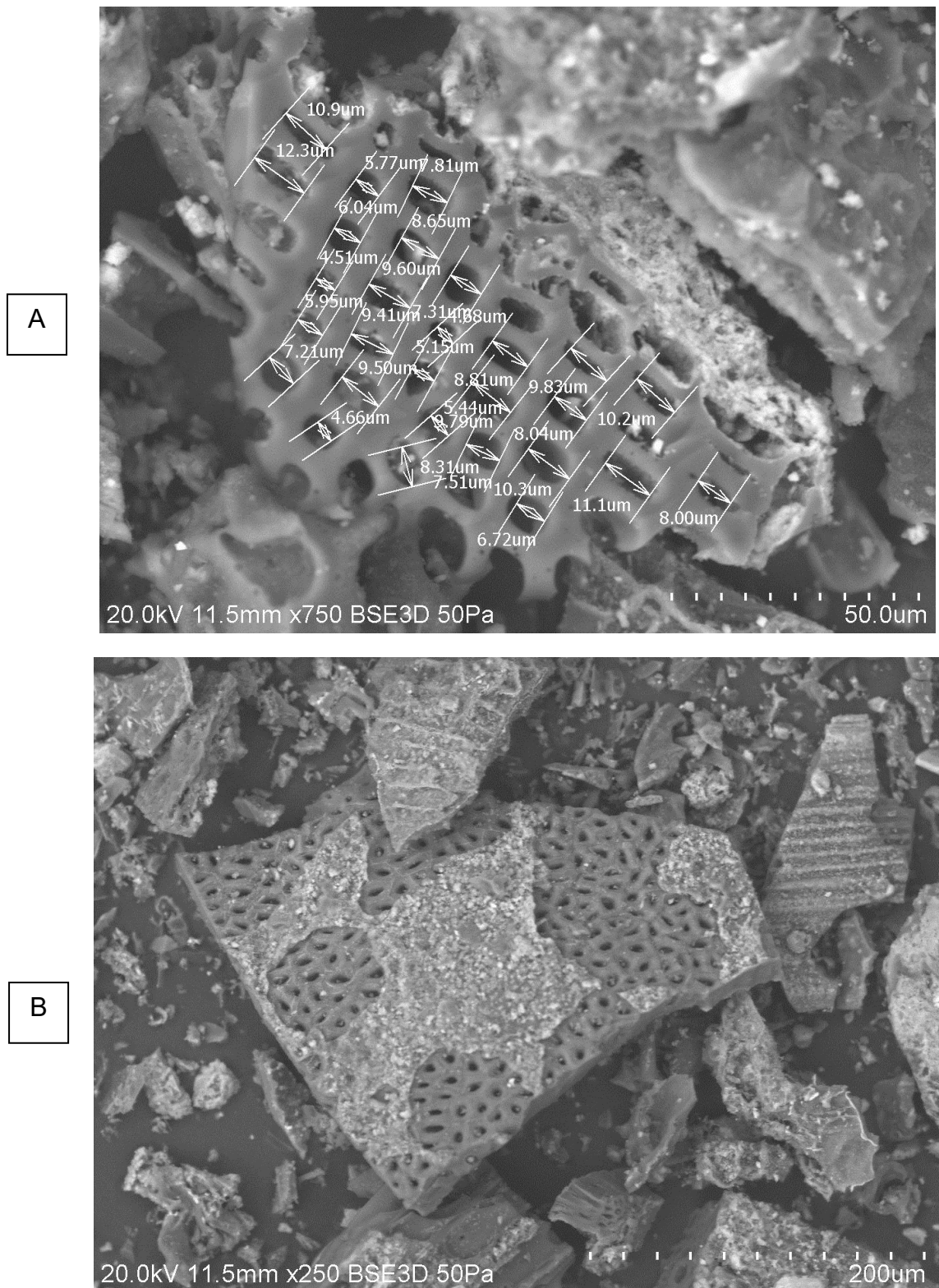


Fig. S10. SEM images of TOR 600 sample showing complex macroporosity: A) Pore size measurements; B) True honeycomb of the cellular structure.

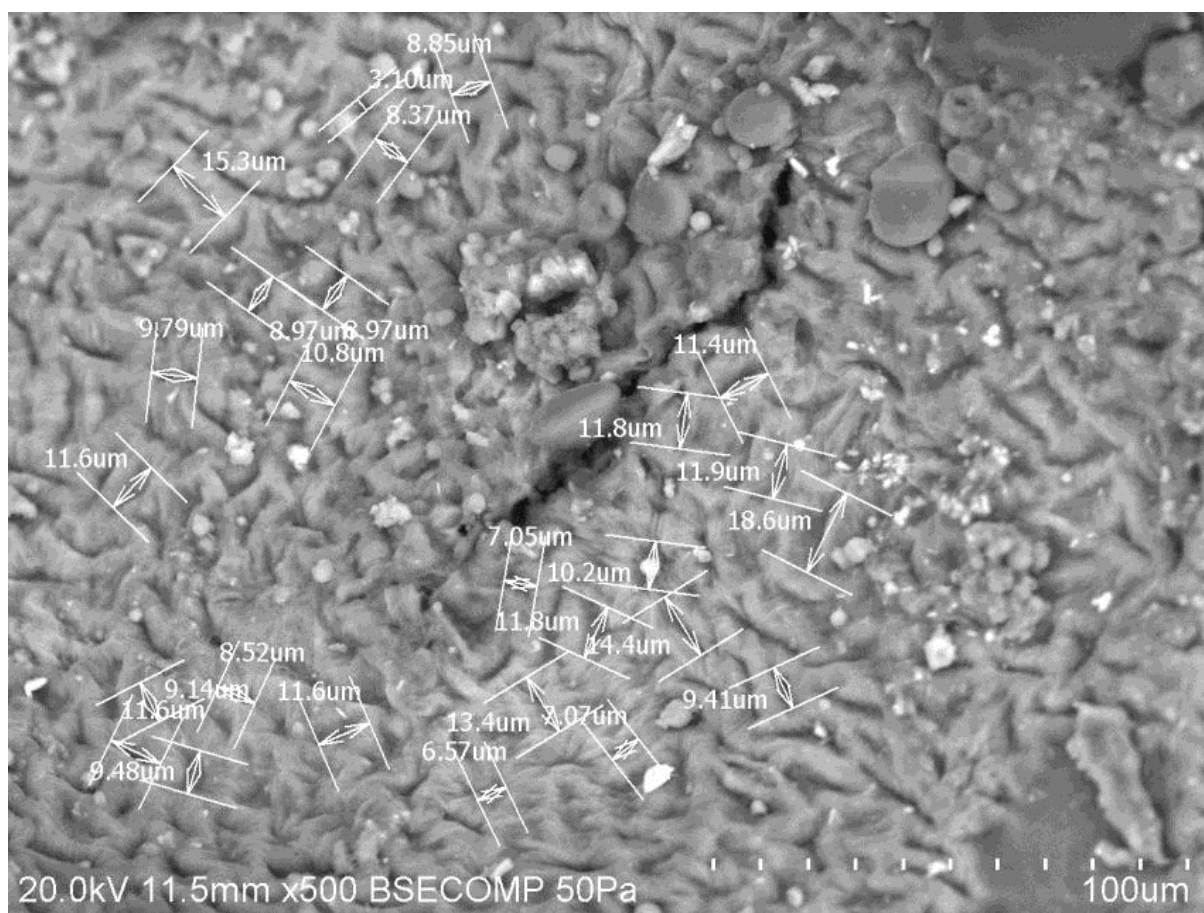
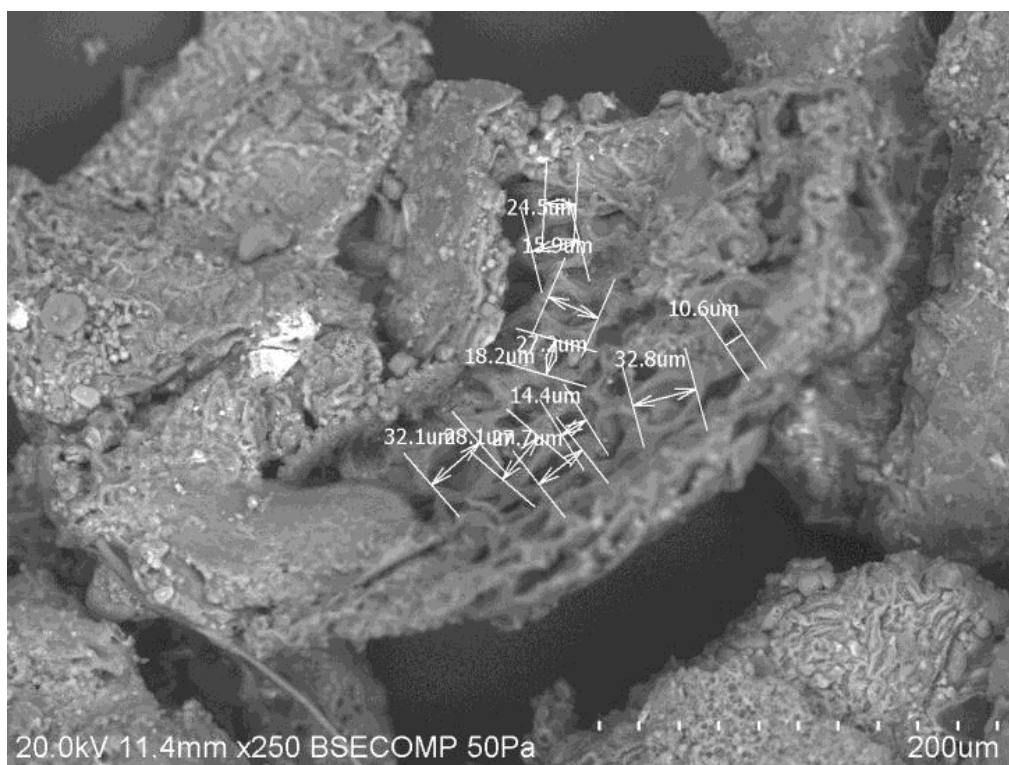


Fig. S11. SEM images and pore size measurements of the TF 135 biochar sample.

A



B

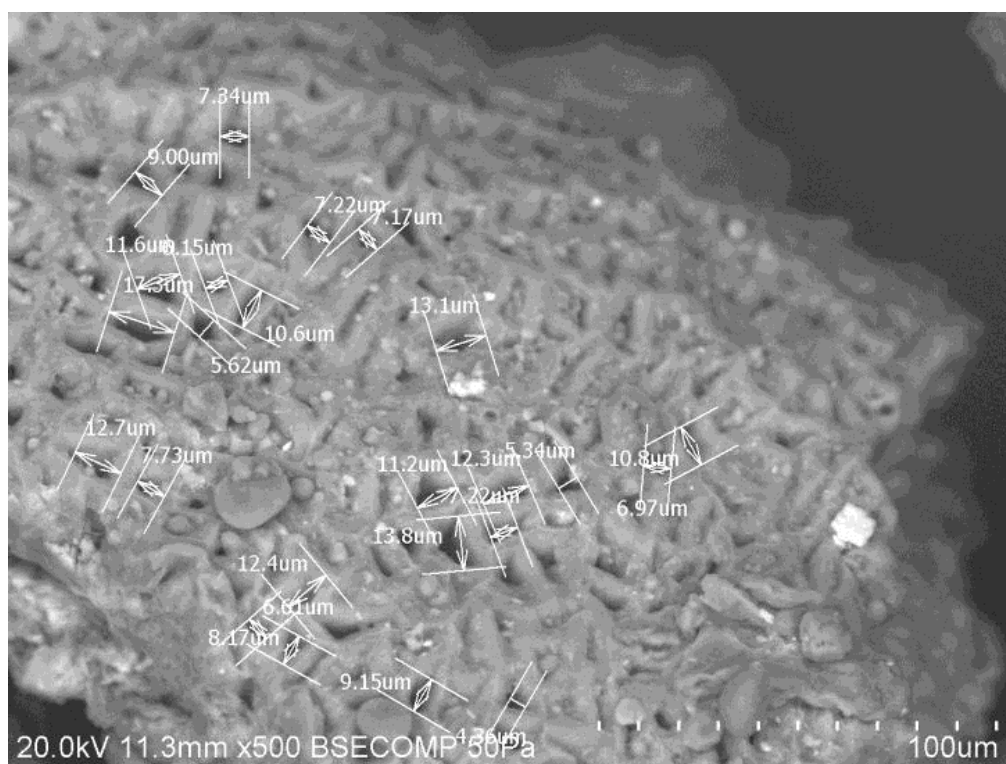


Fig. S12. SEM images and pore size measurements for the TF 200 sample: A) Pores with appearance and sizes different from TF 135 sample; B) Pores with similar appearance and sizes similar to TF 135 sample.

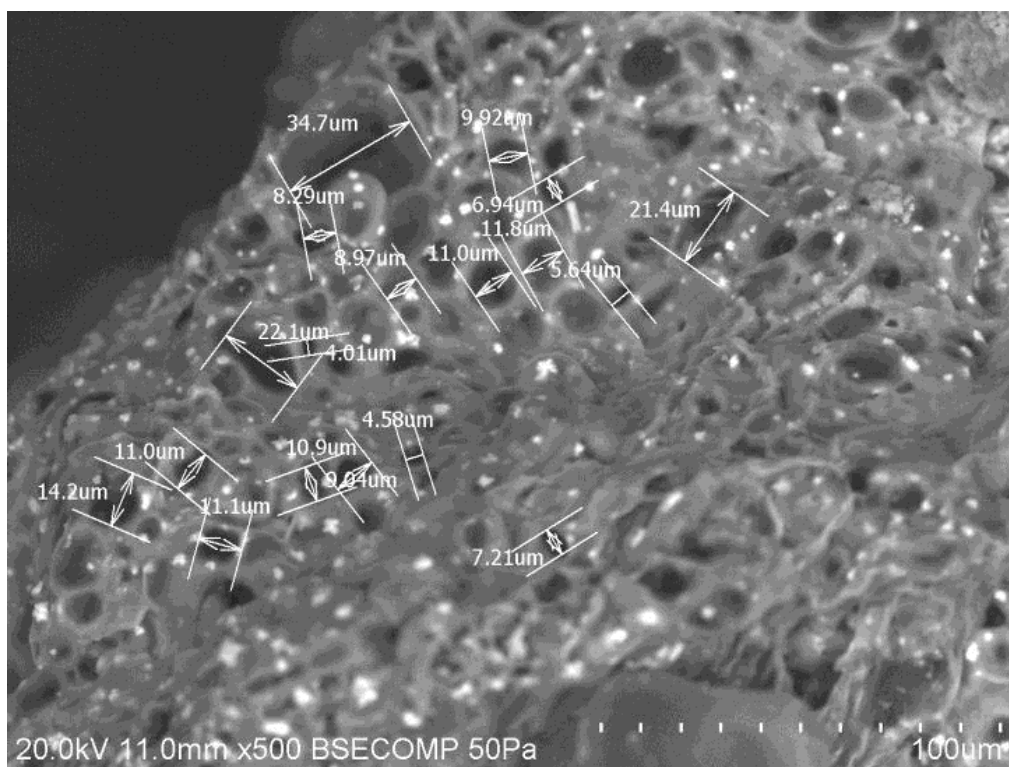


Fig. S13. SEM images and pore size measurements for the TF 275 sample.

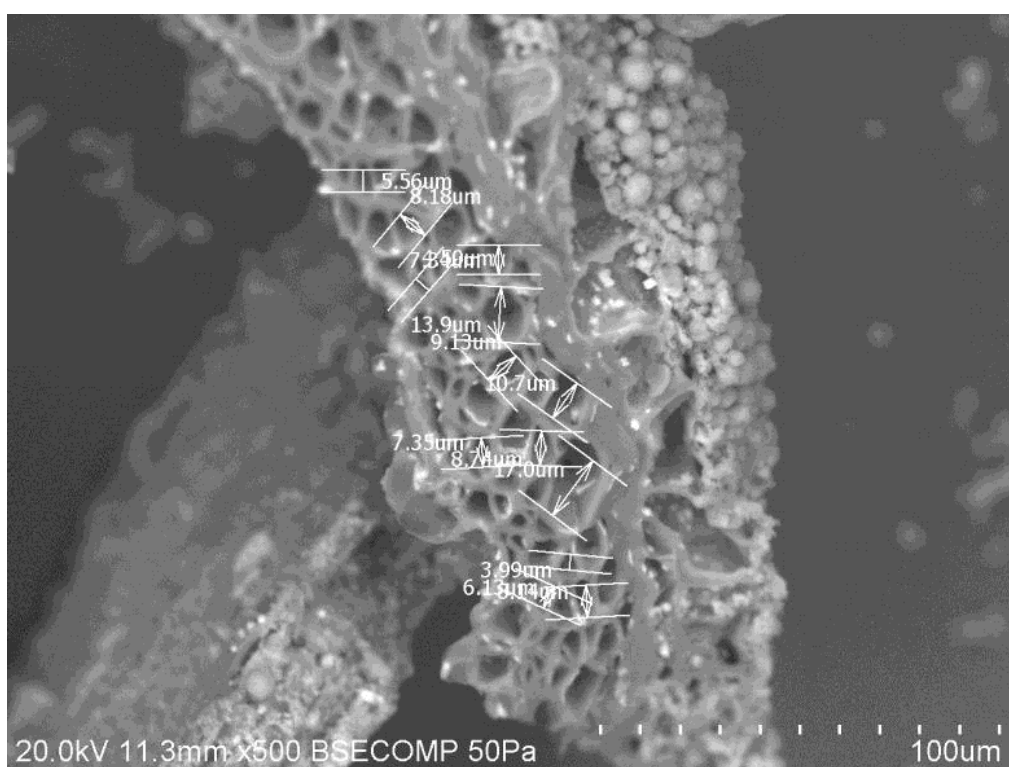


Fig. S14. SEM images and pore size measurements for the TF 350 sample.

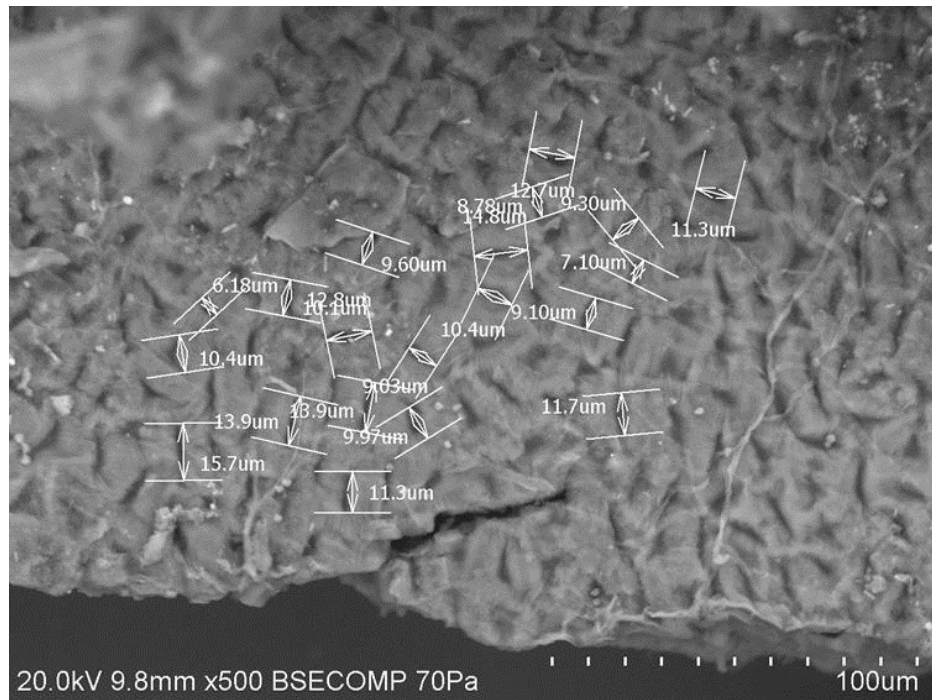


Fig. S15. SEM images and pore size measurements for the HTC 80 sample.

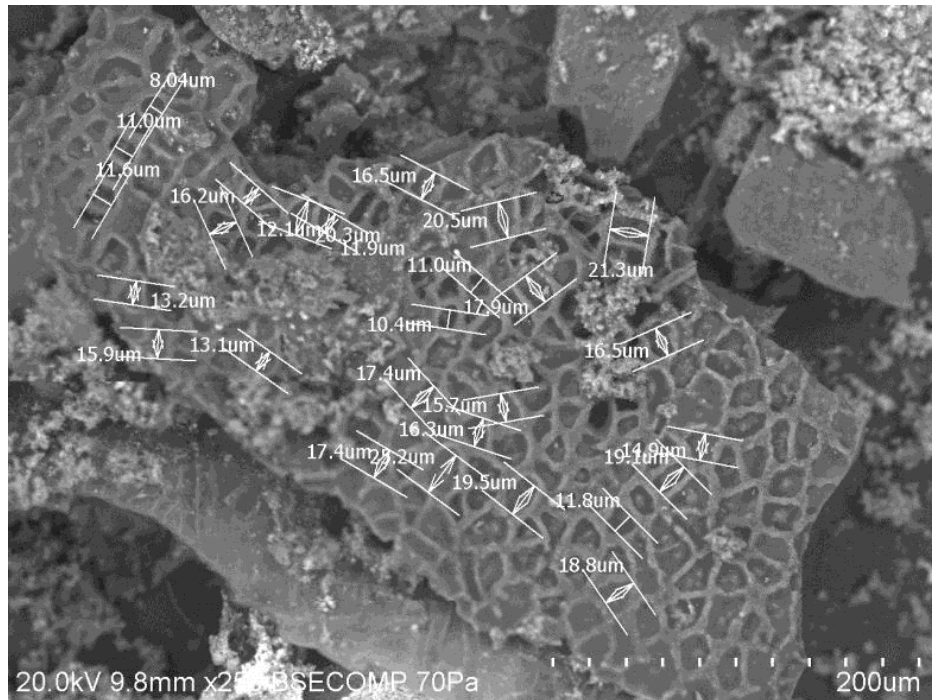
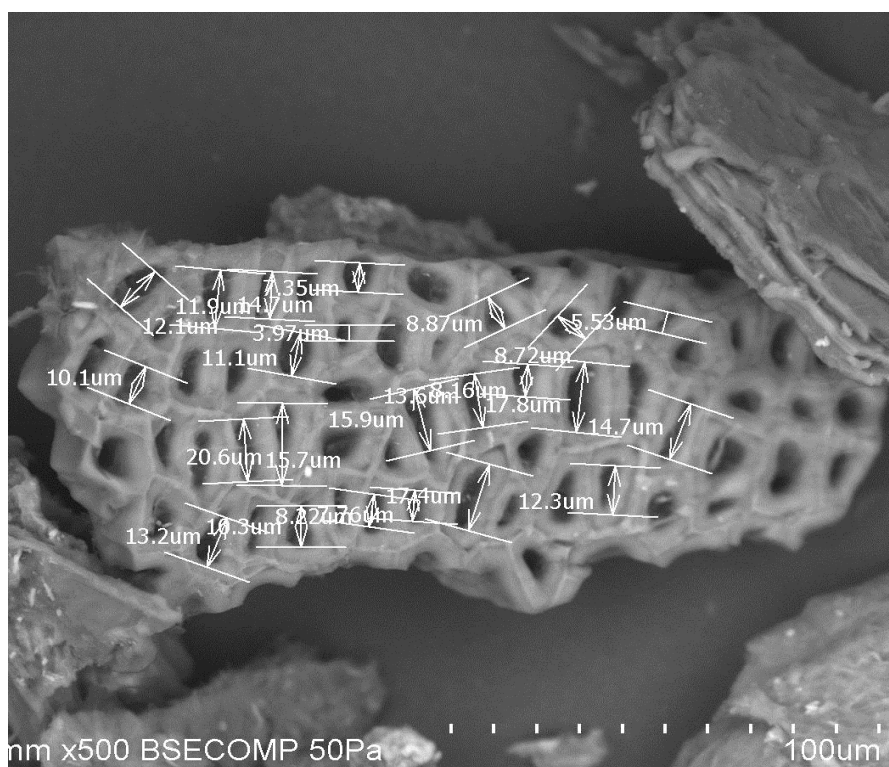


Fig. S16. SEM images and pore size measurements for the HTC 95 sample.

A



B



Fig. S17. SEM images and pore size measurements for the HTC 120 sample: A) Open pores; B) Pores in the process of forming.

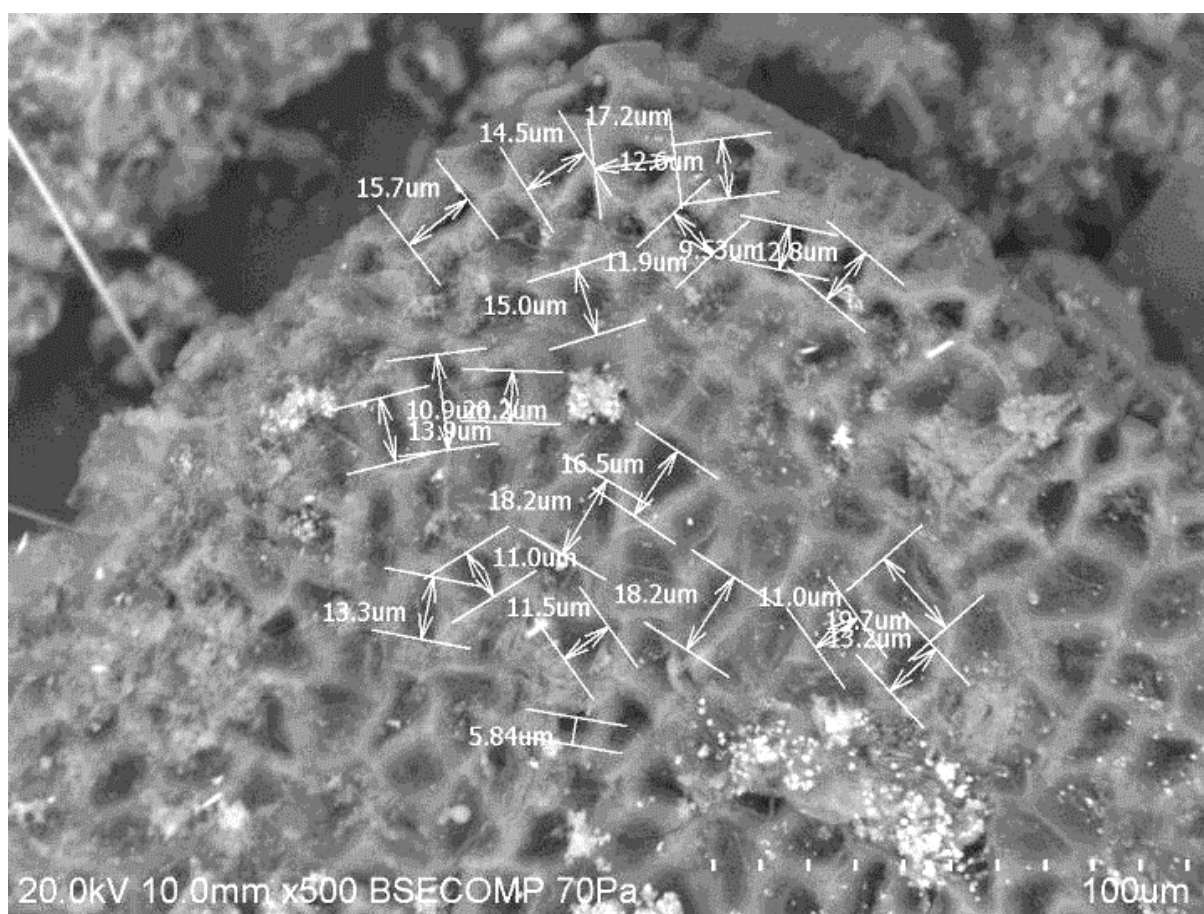


Fig. S18. SEM images and pore size measurements for the HTC 221 sample.