**Supplementary**

Table S1 shows the compressive strength of the samples in relation to the composition of the ceramic-based composites.

**Table S1.** Compressive strength of the samples in relation to the composition of the ceramic-based composites

| Compressive strength (MPa) | Degradation (day) | ZOL (μM) | % GO | % cement | Cellulose phase | % citric acid | % cellulose | % chitosan | Ref. |
|---|---|---|---|---|---|---|---|---|---|
| 0.006 | 1 | 0 | 0 | 0 | 0 | 3 | 8 | 0 | [1] |
| 0.006 | 3 | 0 | 0 | 0 | 0 | 3 | 8 | 0 | [1] |
| 0.006 | 5 | 0 | 0 | 0 | 0 | 3 | 8 | 0 | [1] |
| 0.006 | 7 | 0 | 0 | 0 | 0 | 3 | 8 | 0 | [1] |
| 0.12 | 14 | 0 | 0 | 0 | 0 | 3 | 8 | 0 | [1] |
| 0.006 | 1 | 0 | 0 | 20 | 0 | 3 | 8 | 0 | [1] |
| 0.006 | 3 | 0 | 0 | 20 | 0 | 3 | 8 | 0 | [1] |
| 0.006 | 5 | 0 | 0 | 20 | 0 | 3 | 8 | 0 | [1] |
| 0.006 | 7 | 0 | 0 | 20 | 0 | 3 | 8 | 0 | [1] |
| 0.12 | 14 | 0 | 0 | 20 | 0 | 3 | 8 | 0 | [1] |
| 0.006 | 1 | 0 | 0 | 30 | 0 | 3 | 8 | 0 | [1] |
| 0.006 | 3 | 0 | 0 | 30 | 0 | 3 | 8 | 0 | [1] |
| 0.1 | 5 | 0 | 0 | 30 | 0 | 3 | 8 | 0 | [1] |
| 0.125 | 7 | 0 | 0 | 30 | 0 | 3 | 8 | 0 | [1] |
| 0.124 | 14 | 0 | 0 | 30 | 0 | 3 | 8 | 0 | [1] |
| 0.024 | 1 | 0 | 0 | 50 | 0 | 3 | 8 | 0 | [1] |
| 0.03 | 3 | 0 | 0 | 50 | 0 | 3 | 8 | 0 | [1] |
| 0.125 | 5 | 0 | 0 | 50 | 0 | 3 | 8 | 0 | [1] |
| 0.63 | 7 | 0 | 0 | 50 | 0 | 3 | 8 | 0 | [1] |
| 0.65 | 14 | 0 | 0 | 50 | 0 | 3 | 8 | 0 | [1] |
| 0.09 | 0 | 0 | 0 | 50 | 0 | 3 | 8 | 0 | [20] |
| 0.2 | 0 | 0 | 0.5 | 50 | 0 | 3 | 8 | 0 | [20] |
| 0.16 | 0 | 0 | 1 | 50 | 0 | 3 | 8 | 0 | [20] |
| 0.16 | 0 | 0 | 1.5 | 50 | 0 | 3 | 8 | 0 | [20] |
| 0.1 | 0 | 0 | 2 | 50 | 0 | 3 | 8 | 0 | [20] |
| 0.02 | 0 | 0 | 0 | 50 | 0 | 3 | 8 | 0 | [26] |
| 0.1 | 0 | 0.5 | 0 | 50 | 0 | 3 | 8 | 0 | [26] |
| 1 | 0 | 5 | 0 | 50 | 0 | 3 | 8 | 0 | [26] |
| 1.4 | 0 | 0 | 1.5 | 50 | 0 | 3 | 8 | 0 | [26] |
| 1 | 0 | 0.5 | 1.5 | 50 | 0 | 3 | 8 | 0 | [26] |
| 0.8 | 0 | 5 | 1.5 | 50 | 0 | 3 | 8 | 0 | [26] |
| 1.7 | 0 | 0 | 0 | 62.5 | 1 | 20 | 2 | 0 | [7] |
| 1.5 | 0 | 0 | 0 | 65 | 1 | 20 | 2 | 0 | [7] |
| 0.9 | 0 | 0 | 0 | 67.5 | 1 | 20 | 2 | 0 | [7] |
| 1.3 | 0 | 0 | 0 | 70 | 1 | 20 | 2 | 0 | [25] |
| 1.3 | 0 | 0 | 0.5 | 70 | 1 | 20 | 2 | 0 | [25] |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 1.8 | 0 | 0 | 1 | 70 | 1 | 20 | 2 | 0 | [25] |
| 1.1 | 0 | 0 | 2 | 70 | 1 | 20 | 2 | 0 | [25] |
| 2 | 0 | 0 | 0 | 64 | 3 | 20 | 0 | 2 | [10] |
| 6 | 1 | 0 | 0 | 64 | 3 | 20 | 0 | 2 | [10] |
| 9 | 3 | 0 | 0 | 64 | 3 | 20 | 0 | 2 | [10] |
| 11 | 7 | 0 | 0 | 64 | 3 | 20 | 0 | 2 | [10] |
| 11 | 14 | 0 | 0 | 64 | 3 | 20 | 0 | 2 | [10] |
| 8 | 0 | 0 | 0 | 64 | 3 | 40 | 0 | 2 | [10] |
| 10 | 1 | 0 | 0 | 64 | 3 | 40 | 0 | 2 | [10] |
| 13 | 3 | 0 | 0 | 64 | 3 | 40 | 0 | 2 | [10] |
| 14 | 7 | 0 | 0 | 64 | 3 | 40 | 0 | 2 | [10] |
| 15 | 14 | 0 | 0 | 64 | 3 | 40 | 0 | 2 | [10] |
| 9 | 0 | 0 | 0 | 64 | 3 | 20 | 2 | 2 | [10] |
| 12 | 1 | 0 | 0 | 64 | 3 | 20 | 2 | 2 | [10] |
| 14 | 3 | 0 | 0 | 64 | 3 | 20 | 2 | 2 | [10] |
| 16 | 7 | 0 | 0 | 64 | 3 | 20 | 2 | 2 | [10] |
| 16.5 | 14 | 0 | 0 | 64 | 3 | 20 | 2 | 2 | [10] |
| 13 | 0 | 0 | 0 | 64 | 3 | 40 | 2 | 2 | [10] |
| 15 | 1 | 0 | 0 | 64 | 3 | 40 | 2 | 2 | [10] |
| 15 | 3 | 0 | 0 | 64 | 3 | 40 | 2 | 2 | [10] |
| 17 | 7 | 0 | 0 | 64 | 3 | 40 | 2 | 2 | [10] |
| 18 | 14 | 0 | 0 | 64 | 3 | 40 | 2 | 2 | [10] |
| 14 | 0 | 0 | 0 | 64 | 3 | 20 | 4 | 2 | [10] |
| 16 | 1 | 0 | 0 | 64 | 3 | 20 | 4 | 2 | [10] |
| 17 | 3 | 0 | 0 | 64 | 3 | 20 | 4 | 2 | [10] |
| 18 | 7 | 0 | 0 | 64 | 3 | 20 | 4 | 2 | [10] |
| 18.5 | 14 | 0 | 0 | 64 | 3 | 20 | 4 | 2 | [10] |
| 18 | 0 | 0 | 0 | 64 | 3 | 40 | 4 | 2 | [10] |
| 18 | 1 | 0 | 0 | 64 | 3 | 40 | 4 | 2 | [10] |
| 21 | 3 | 0 | 0 | 64 | 3 | 40 | 4 | 2 | [10] |
| 20.5 | 7 | 0 | 0 | 64 | 3 | 40 | 4 | 2 | [10] |
| 22 | 14 | 0 | 0 | 64 | 3 | 40 | 4 | 2 | [10] |

Figure S1 shows the compressive strength of predicted and experimental MC loaded samples versus wt% of GO.

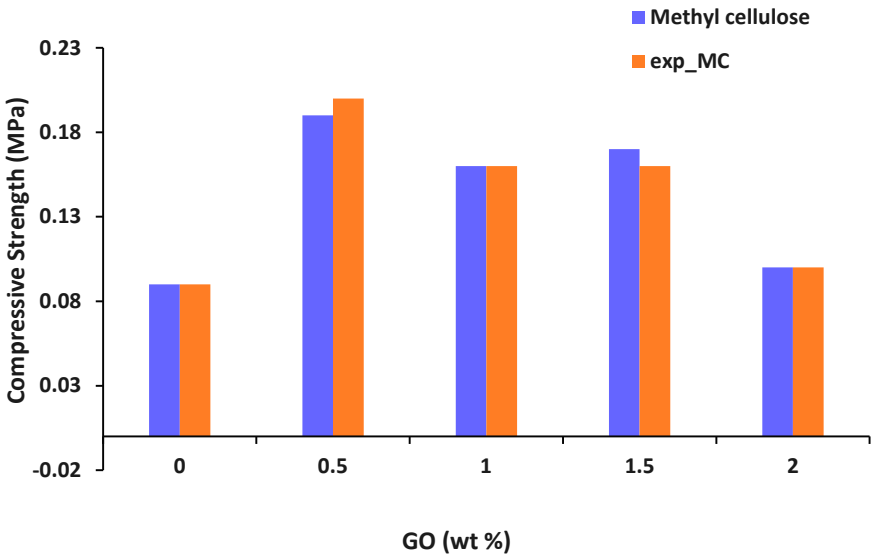


**Figure S1.** Compressive strength of predicted and experimental MC loaded samples versus wt% of GO (cement phase=50%, % cellulose=4, % chitosan=0).