Supporting Information

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The Biochar Derived from Carp for High-Efficiency Solar Steam Generation and Water Purification

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Table S1 The water evaporation rates and conversion efficiency of different materials under one sun illumination.

| Materials                                | $T^\theta{^\circ}C$ | $H^\varphi{%}$ | $v^\beta$/kg·m$^{-2}$·h$^{-1}$ | $\eta^\beta{(\%)}$ | References |
|------------------------------------------|---------------------|----------------|-------------------------------|--------------------|------------|
| Carbonized daikon                        | ~28 NO$^\gamma$     | 1.57           | 85.9                          | [1]                |
| Carbonized mushrooms                     | ~28 41              | 1.475          | 78                            | [2]                |
| Carbonized enteromorpha prolifera        | ~22 35              | 1.1-1.3        | 80-84                         | [3]                |
| Carbonized wood slice                    | ~30 60              | 1.45           | 91.3                          | [4]                |
| Carbonized melamine foams                | ~27 50              | 1.27           | 87.3                          | [5]                |
| Hollow carbon spheres                    | ~25 50              | 1.24-1.45      | NO$^\gamma$                   | [6]                |
| Carbonized carrot                        | ~25 41              | 2.04           | 127.8                         | [7]                |
| Commercially available activated carbon fiber felt | ~25 NO$^\gamma$     | 1.22           | 79.4                          | [8]                |
| Carbon black nanoparticles               | ~24 35              | 1.47           | 100                           | [9]                |
| Graphite-coated wood                     | ~21 NO$^\gamma$     | 1.15           | 80                            | [10]               |
| PTC gel                                  | NO$^\gamma$         | NO$^\gamma$    | 1.49                          | 93.8               | [11]       |
| 3D hydrogel evaporators                  | NO$^\gamma$         | NO$^\gamma$    | 1.42                          | 96                 | [12]       |
| the meat and bonemeal biochars           | ~25 41              | 1.48           | 131.2                         | This work          |

$^\alpha T$ and $H$ represent the ambient temperature and humidity of the experimental process of solar steam generation, respectively.

$^\beta v$ and $\eta$ represent the water evaporation rates and conversion efficiency, respectively.

$^\gamma$ “NO” represents the value of the corresponding item not mentioned in the references.
Figure S1 Cleaning filtrates of MBB300, MBB400 and MBB500 with cyclohexane and ethanol.
Figure S2 Digital images of experimental device.
Figure S3 SEM images and elemental dot maps of MBB300, MBB400 and MBB500.
**Figure S4** High resolution XPS with Shirley fitting analysis of C1s and O1s for MBB300, MBB400 and MBB500.
Figure S5 Water contact angle of MBB300, MBB400, and MBB500.
Figure S6 (a) Outdoor experiment pictures; (b-c) The solar intensity and the water evaporation rate of MBB500 at different time periods in outdoor evaporation experiment.
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