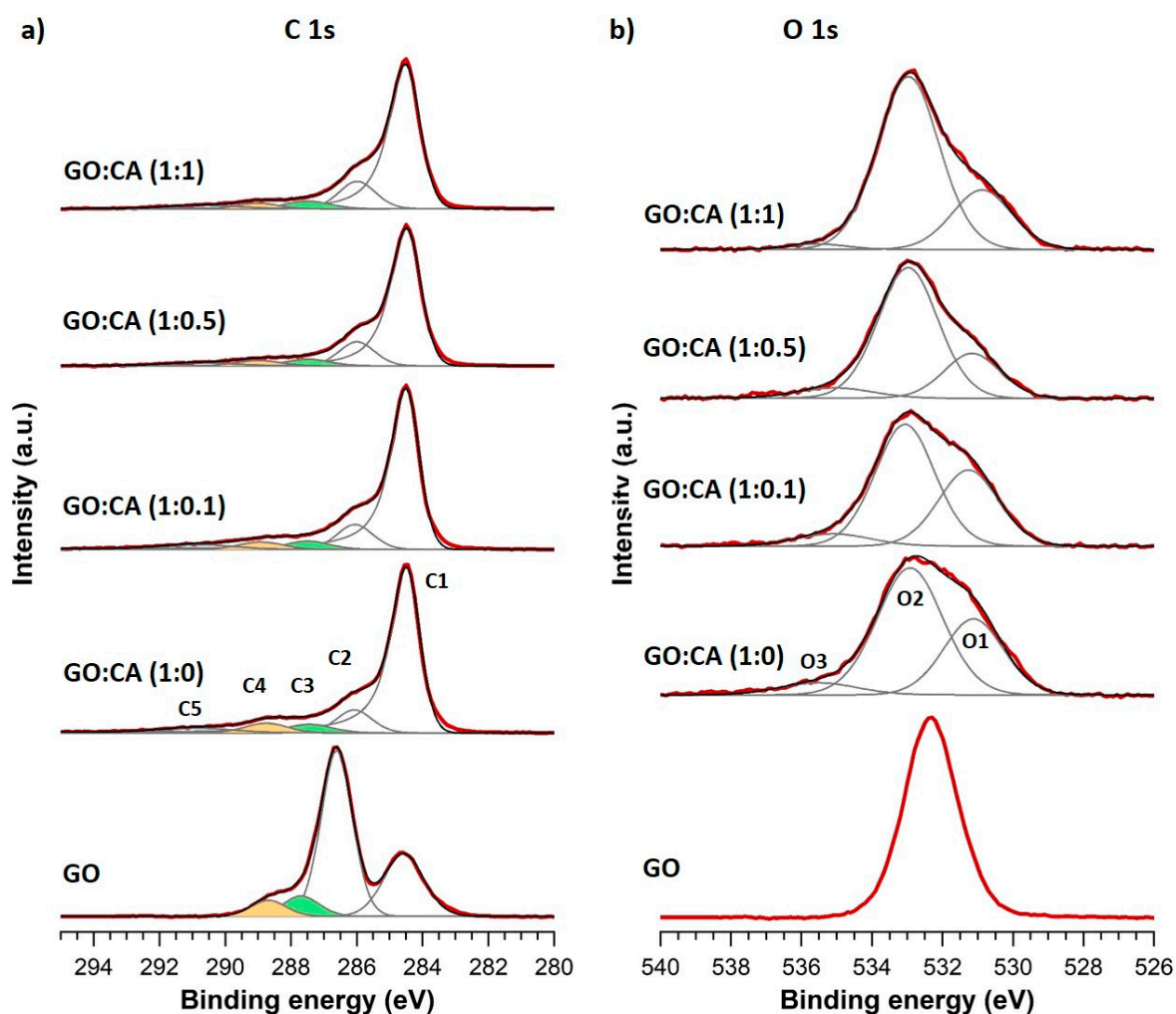


# Joining Caffeic Acid and Hydrothermal Treatment to Produce Environmentally Benign Highly Reduced Graphene Oxide

Ana Barra <sup>1,2,3</sup>, Oana Lazăr <sup>4</sup>, Aida Pantazi <sup>4,5</sup>, María J. Hortigüela <sup>6</sup>, Gonzalo Otero-Irurueta <sup>6</sup>, Marius Enăchescu <sup>4,7</sup>, Eduardo Ruiz-Hitzky <sup>3</sup>, Cláudia Nunes <sup>2,\*</sup> and Paula Ferreira <sup>1,\*</sup>



**Figure S1.** (a) C 1s and (b) O 1s XPS spectra of GO and the samples hydrothermally reduced using different ratios of GO/caffeic acid. In GO spectrum of the O 1s, the intensity was divided by five. Best fits are also included.

**Table S1.** Relative atomic percentages between carbon and oxygen in the diverse rGO samples (grey), and between the main components of C 1s (blue) and O 1s (green) XPS spectra.

| Atomic %                         | BE (eV) | GO:CA (1:0) | GO:CA (1:0.1) | GO:CA (1:0.5) | GO:CA (1:1) | GO   |
|----------------------------------|---------|-------------|---------------|---------------|-------------|------|
| C 1s                             |         | 85          | 85.7          | 85.4          | 82.7        | 62.4 |
| O 1s                             |         | 15          | 14.3          | 14.6          | 17.3        | 37.6 |
| C1 (C-C/C=C)                     | ~ 284.5 | 68.9        | 68            | 69.5          | 68.9        | 27.8 |
| C2 (C-O)                         | ~ 286   | 13          | 14.8          | 16.0          | 17.1        | 57.6 |
| C3 (C=O)                         | ~ 287.5 | 6.2         | 6.1           | 5.6           | 5.8         | 8.3  |
| C4 (O-C=O)                       | ~ 289   | 6.6         | 5.6           | 4.7           | 3.9         | 6.3  |
| C5 ( $\pi$ - $\pi^*$ transition) | ~ 291   | 5.3         | 5.5           | 4.2           | 4.3         |      |
| O1 (O-C=O*/C=O aromatics)        | ~ 531   | 32.8        | 35.7          | 22.9          | 24.5        |      |
| O2 (C-O/O*-C=O)                  | ~ 533   | 60.3        | 57.1          | 70.3          | 73.2        |      |
| O3 (water)                       | ~ 535   | 6.9         | 7.2           | 6.8           | 2.3         |      |