Electronic Supplementary Material (ESI) for New Journal of Chemistry.


## Supplementary

Table S1 – Technical characteristics of the initial biomass components and the resulting biocarbon

| Raw material | $A^d$ | $W^a$ | $V^{daf}$ | Q, |
|---|---|---|---|---|
| | wt. % | | | MJ/kg |
| Starting material (biomass) | 2.63 | 5.0 | 80.13 | 15.86 |
| Biomass-derived carbon | 7.89 | 1.2 | 18.20 | 25.92 |

where:

- Wa – moisture;
- Ad – ash content;
- Vdaf – volatile matter;
- Q – calorific value.

Figure S2 presents the measurement results for the bio char specific surface area.

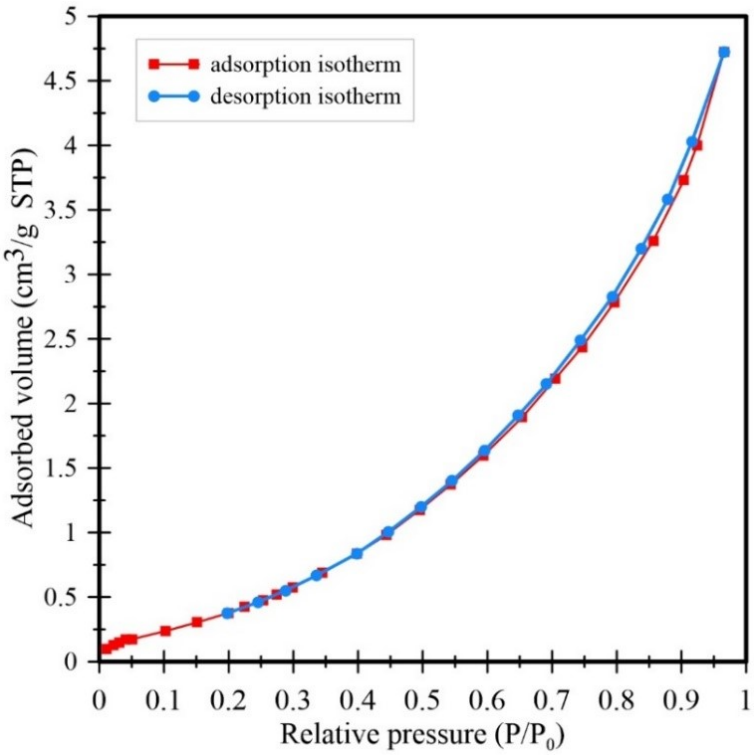


Figure S1 – Adsorption-desorption isotherms for carbon residue from pomelo peel pyrolysis

The pattern of the isotherm in the relative pressure range from 0 to 0.1 $p/p_0$ is related to a relatively small number of micropores in the sample for carbon materials. The specific surface area of the sample attained 1.3 $m^2/g$. Table S3 presents the pore size distribution. The analysis results show that the average pore diameter is 23.2 nm, which corresponds to that of mesoporous materials.

Table S2 – Pore size distribution

| No. | Pore size, nm | Pore volume, $cm^3/g$ | Percentage, % |
|---|---|---|---|
| 1 | 2.00-10.00 | 0.00587 | 62.97 |
| 2 | 10.00-20.00 | 0.00184 | 19.78 |
| 3 | 20.00-50.00 | 0.00161 | 17.25 |
| 4 | >50 | - | - |

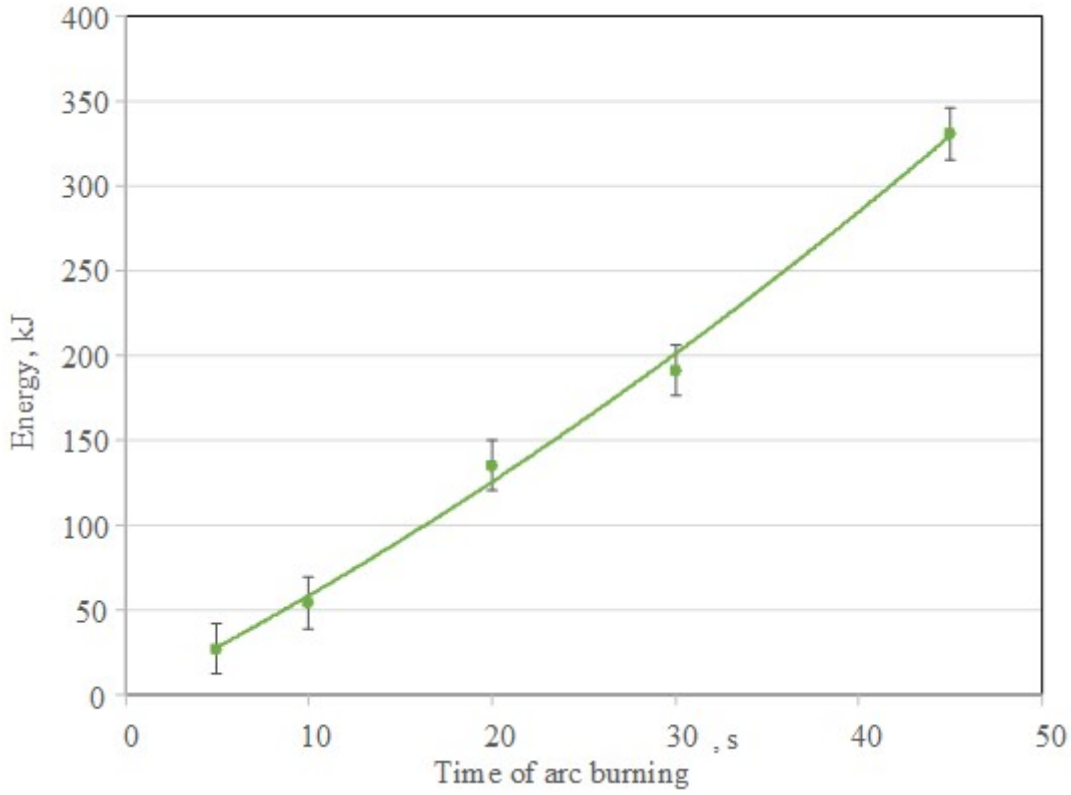


Figure S2 – Energy parameters of the arc reactor