Supplementary Materials: The following supporting information can be downloaded at: www.mdpi.com/xxx/s1, Figure S1: Particle size distribution of the as-received olive kernel for particles smaller (a) and larger (b) than 3.15 mm, Table S1: Composition and physicochemical properties of the bauxite used as bed material in the experiments, Table S2: Results of relevant studies exploring gasification of olive pits/kernels and typical woody biomass.

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Supplementary material

Preliminary Experimental Results and Modelling Study of Olive Kernel Gasification in a 2 MWth BFB Gasifier

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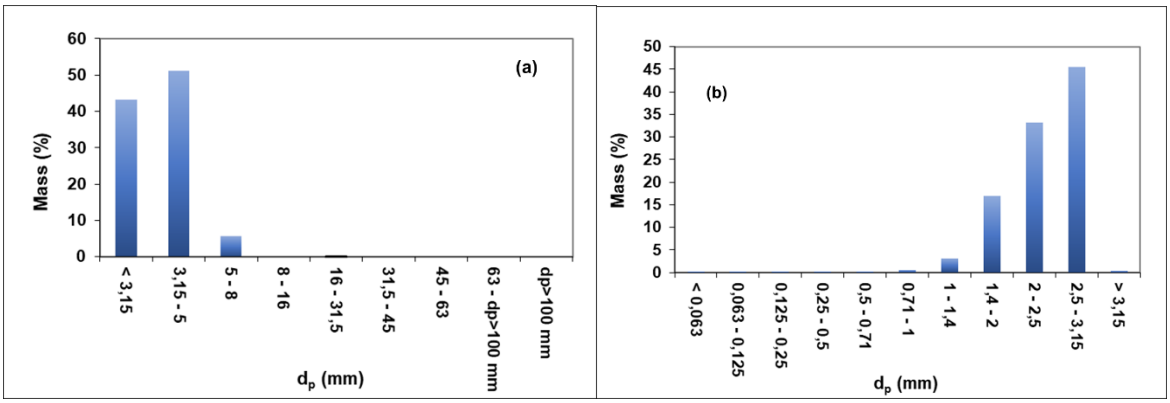

Figure S1. Particle size distribution of the as-received olive kernel for particles smaller (a) and larger (b) than 3.15 mm.

Table S1. Composition and physicochemical properties of the bauxite used as bed material in the experiments.

Composition	
Compound	Mass fraction (%)
SiO_2	6.50
Al_2O_3	88.50
Fe_2O_3	1.10
TiO_2	3.00
MgO	0.02
CaO	0.02

Na_2O	0.02
K_2O	0.03
Physicochemical properties	
Apparent density (g/cm^3)	3.15
Apparent porosity (%)	12.0
Granulometry (mm)	0.2 - 0.5
Minimum fluidization velocity	0.17

Table S2. Results of relevant studies exploring gasification of olive pits/kernels and typical woody biomass.

Feed	**Olive pit**	**Olive kernel**	**Olive kernel**	**Woody biomass**	**Olive kernel**
Reference	[26,28]	[26,28]	29	[38,43]	*This work*
Reactor type	Downdraft	Downdraft	BFB [a]	[b]	BFB
Power (kW)	460	500	5	5 - 1,000	2,000
E.R.	0.3	0.2 - 0.3	0.3	0.2 - 0.3	0.3
H_2 (vol.%)	16.0	16.8	14.3	13 - 17	13.5
CO (vol.%)	22.8	21.6	16.1	12 - 18	17.1
CO_2 (vol.%)	5.10	11.6	18.2	13 - 17	18.9
CH_4 (vol.%)	3.4	3.1	3.8	3 - 5	4.2
LHV (d.b.)	5.5 (MJ/kg)	5.1 (MJ/kg)	4.0 (MJ/Nm^3)	4.7 - 5.7 (MJ/Nm^3)	5.0 (MJ/kg)

[a] *olivine and limestone as bed materials,* [b] *depending on feedstock*