Supplementary material

Combination of Dry Milling and Separation Processes with Anaerobic Digestion of Olive Mill Solid Waste: Methane Production and Energy Efficiency

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Table S1. Pretreatments of OP in the literature and in the present study.

Pretreatment	Conditions	Methane before pretreatment (ml/gVS)	Methane after pretreatment (ml/gVS)	Methane enhancement (%)	Energy balance (kJ/gVS)	Ref
Thermo-alkaline	Three-phase OP NaOH (4% VS) 90°C, 4 h	221.5	273.0	+22%	Nd	[28]
Fenton reagent addition	Traditional extraction OP H2O2/[Fe2+] = 1000, [Fe2+] = 1.5 mM, 120 min, pH 3	335.5	262.1	-22%	Nd	[30]
Thermal and Steam explosion	Two-phase OP P= 12 bar 166°C, 30 min	255.6	119.4	-50 %	Nd	[19]
Thermal	Two-phase OP 148°C, 30 min	255.6	434.2	+70 %	Nd	
	Two-phase OP 180°C, 180 min	373	380	+2%	Nd	[9]
Ultrasonic	Two-phase OP 200W, 24 kHz 90 min	373	393	+5%	−192.3	[29]
Milling	Two-phase OP Manual mill to 3mm	170	176	+4%	Nd	[19]
Thermochemical pretreatment	Three-phase OP Citric acid at 90°C, 4 hours 1mmol/gVSsubstrate	258.7	217.3	-16%	-111.7	[11]
	H2O2 at 90°C for 4 hours 1mmol/gVSsubstrate	258.7	176.3	-47%	-113.2	
	Ethanol at 90°C for 4hours 1mmol/gVSsubstrate	258.7	197.8	-23	-112.4	
Milling	Traditional extraction OP	188	246	+31%	+7.2	Present study

Knife milling 1 mm				
Three-phase OP Vibro-ball milling, 10 min	98	108	+10	-85.5
Three-phase OP Ultrafine milling 0.1 mm	98	168	+71%	-2.8

Nd Not determined.