

Supplementary materials

for the article

Steam explosion conditions influence the biogas yield of rice straw highly

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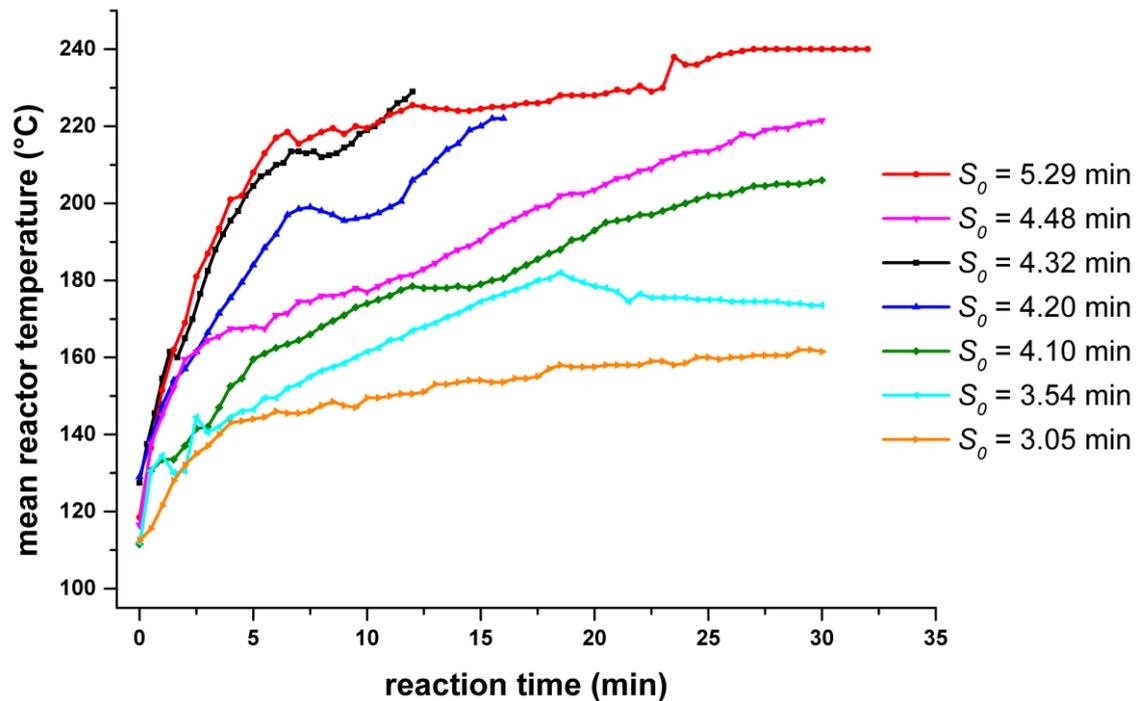
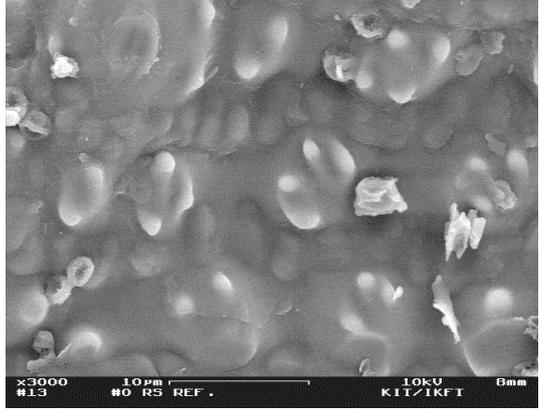
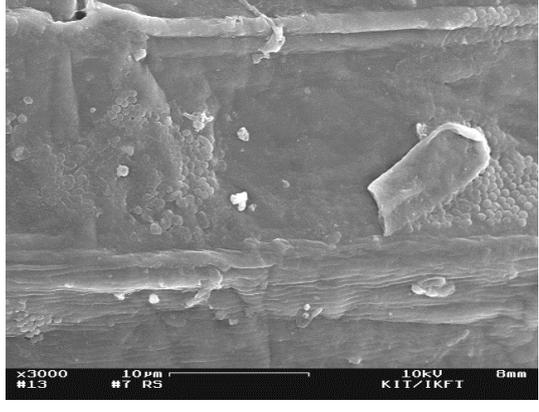
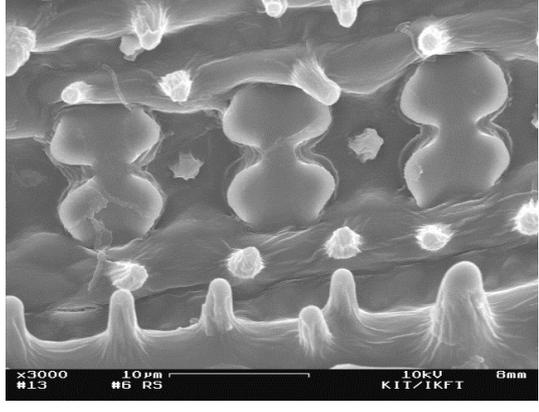
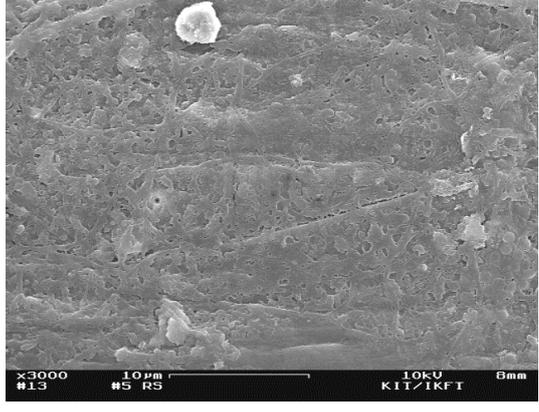
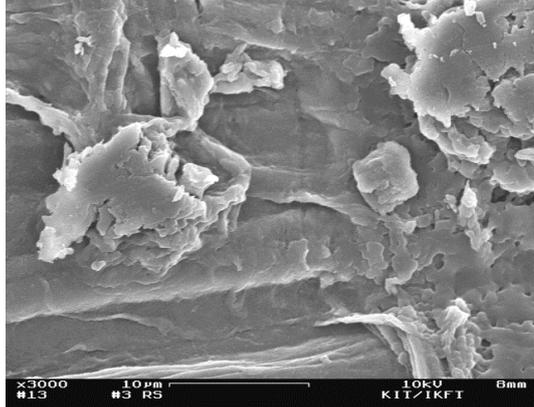
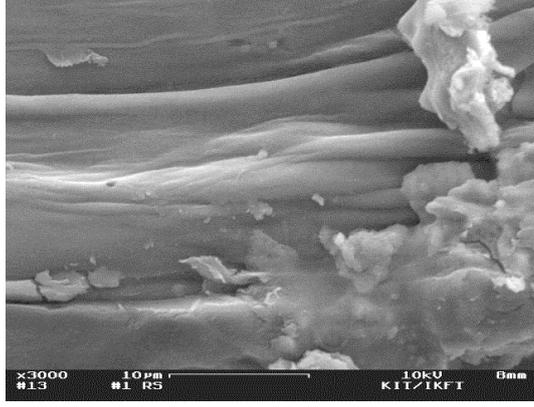
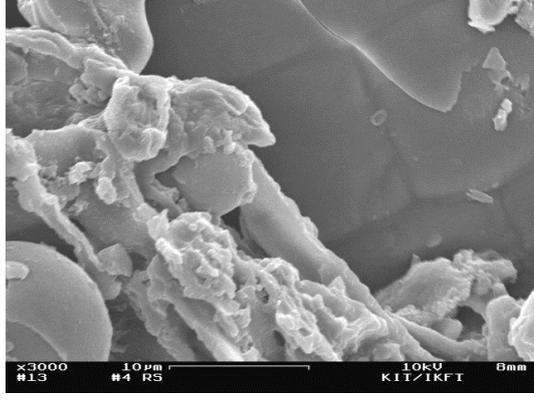
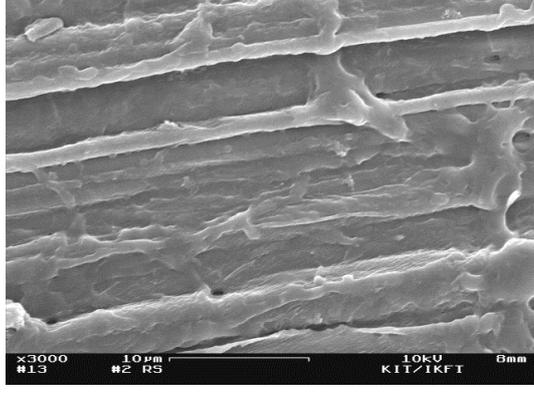


Figure S1. Temperature profile of steam explosion experiments which lead to different severity parameters S_0 . A reaction time of zero is defined when the first steam enters the reactor. At the end of the temperature line the explosion step is performed.

Table S1. Photographs and SEM images of untreated rice straw and steam-exploded residue.

Untreated rice straw	 A photograph showing a pile of untreated rice straw. The straw is light brown and fibrous. A ruler is placed below the pile for scale, showing measurements from 3 to 18 cm.	 Scanning electron micrograph (SEM) of the surface of untreated rice straw. The surface is relatively smooth with some small, irregular particles. Technical details at the bottom: x3000 #13 10µm #0 RS REF. 10kV KIT/IKFT 8mm.
$S_0 = 3.05$ min	 A photograph showing a pile of rice straw steam-exploded for 3.05 minutes. The straw is darker brown and appears more fragmented. A ruler is placed below for scale, showing measurements from 2 to 19 cm.	 SEM image of the surface of rice straw steam-exploded for 3.05 minutes. The surface shows some small, rounded particles. Technical details at the bottom: x3000 #13 10µm #7 RS 10kV KIT/IKFT 8mm.
$S_0 = 3.54$ min	 A photograph showing a pile of rice straw steam-exploded for 3.54 minutes. The straw is very dark brown and highly fragmented. A ruler is placed below for scale, showing measurements from 2 to 18 cm.	 SEM image of the surface of rice straw steam-exploded for 3.54 minutes. The surface is highly porous and shows many small, rounded particles. Technical details at the bottom: x3000 #13 10µm #6 RS 10kV KIT/IKFT 8mm.
$S_0 = 4.10$ min	 A photograph showing a pile of rice straw steam-exploded for 4.10 minutes. The straw is very dark brown and highly fragmented. A ruler is placed below for scale, showing measurements from 2 to 18 cm.	 SEM image of the surface of rice straw steam-exploded for 4.10 minutes. The surface is highly porous and shows many small, rounded particles. Technical details at the bottom: x3000 #13 10µm #5 RS 10kV KIT/IKFT 8mm.

<p>$S_o = 4.20$ min</p>		 <p>x3000 #13 10µm 10kV KIT/IKFT 8mm</p>
<p>$S_o = 4.32$ min</p>		 <p>x3000 #13 10µm #1 R5 10kV KIT/IKFT 8mm</p>
<p>$S_o = 4.48$ min</p>		 <p>x3000 #13 10µm #4 R5 10kV KIT/IKFT 8mm</p>
<p>$S_o = 5.29$ min</p>		 <p>x3000 #13 10µm #2 R5 10kV KIT/IKFT 8mm</p>