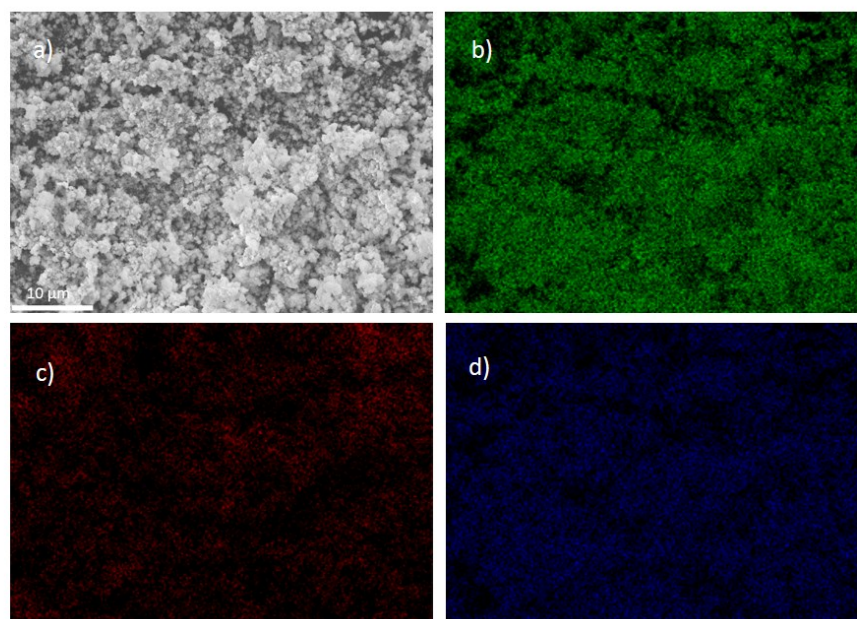


Supporting Informations

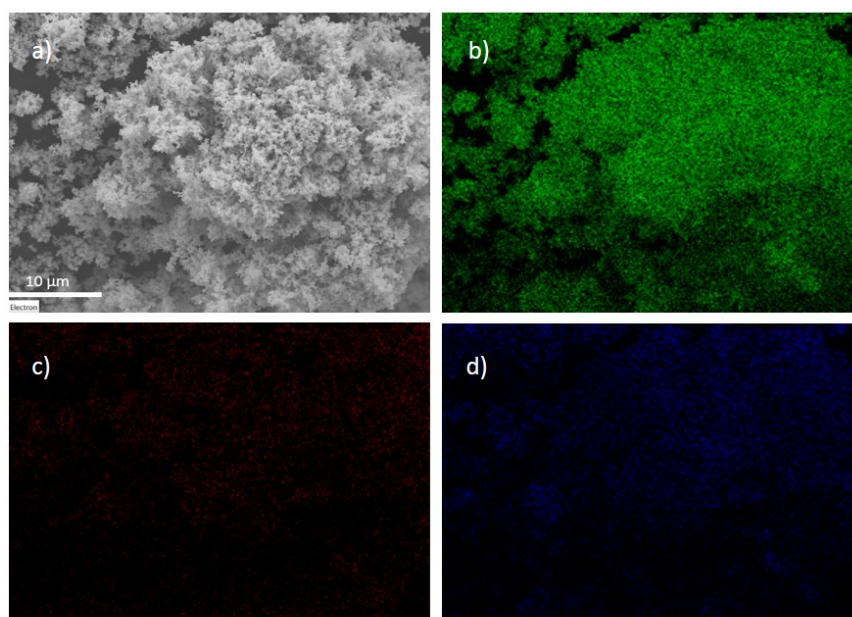
Microwave-assisted preparation of Ag/Ag₂S carbon hybrid structures from pig bristles as efficient HER catalysts

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Fig. S.1 SEM Mapping of samples 0.5Ag/Ag₂S and 0.2Ag/Ag₂S



SEM images with mapping analysis of 0.5Ag/Ag₂S carbon hybrid structure (a) Distribution of Silver (b), Carbon (c) and Sulphur (d)



SEM images with mapping analysis of 0.2Ag/Ag₂S carbon hybrid structure (a) Distribution of Silver (b), Carbon (c) and Sulphur (d)

Table S.1 Complete list of XRD peaks of the different materials

1.4Ag/Ag ₂ S			Silver, 01-087-0597						Silver sulphide, 00-009-0422						
Pos. [°2Th.]	Intensity		h	k	l	d	Pos. [°2Th.]	Intensity	h	k	l	d	Pos. [°2Th.]	Intensity	
1	25,4437	2,1							0	0	2	3,4500	25,347	10	
2	28,4983	4,67							0	2	1	3,0900	28,871	30	
3	31,0469	5,7							-	3	1	1	2,8500	31,362	40
4	33,9065	8,52							1	2	1	2,6700	33,537	20	
5	34,2556	3,89							2	2	0	2,6000	34,467	100	
6	36,1951	2,54							0	2	2	2,4500	36,65	80	
7	37,6559	100	1	1	1	2,35917	38,115	100	-	4	0	2	2,3800	37,768	50
8	40,2972	4,24							-	1	3	0	2,2200	40,606	30
9	43,8532	39,19	2	0	0	2,0431	44,229	45,7	-	1	2	3	2,0900	43,254	40
10	45,7315	2,93							2	1	2	2,0000	45,306	5	
11	47,3466	1,03							-	4	2	2	1,9610	47,259	10
12	48,2896	1,52							-	4	1	4	1,8700	48,652	10
13	52,8359	2,63							0	0	4	1,7190	53,245	30	
14	57,8335	0,48							5	0	0	1,5800	58,357	20	
15	59,3723	0,41							3	3	1	1,5560	59,346	10	
16	63,3254	2,2							2	4	1	1,4750	62,965	5	
17	64,0454	30,33	2	2	0	1,44469	64,443	22,5	-	6	0	1	1,4550	63,932	20
18	69,4916	0,45							-	5	2	5	1,4120	66,123	5
19	70,2608	0,83							3	4	1	1,3360	70,42	10	
20	77,0372	31,11	3	1	1	1,23204	77,397	22,2							

0.5Ag/Ag ₂ S			Silver, 01-087-0597						Silver sulphide, 00-009-0422						
Pos. [°2Th.]	Intensity		h	k	l	d	Pos. [°2Th.]	Intensity	h	k	l	d	Pos. [°2Th.]	Intensity	
1	25,8548	3,35							0	0	2	3,4500	25,347	10	
2	28,8994	6,06							0	2	1	3,0900	28,871	30	
3	31,4425	8,38							-	3	1	1	2,8500	31,362	40
4	33,5304	5,09							1	2	1	2,6700	33,537	20	
5	34,6601	12,02							2	2	0	2,6000	34,467	100	
6	36,05	7,9							0	2	2	2,4500	36,65	80	
7	37,55	100	1	1	1	2,35917	38,115	100	-	4	0	2	2,3800	37,768	50
8	40,6724	5,38							-	1	3	0	2,2200	40,606	30
9	43,3417	5,67	2	0	0	2,0431	44,229	45,7	-	1	2	3	2,0900	43,254	40
10	45,3191	1,7							2	1	2	2,0000	45,306	5	
11	46,1077	1,84							-	4	2	2	1,9610	47,259	10
12	48,67	1							-	4	1	4	1,8700	48,652	10
13	53,2118	2,51							0	0	4	1,7190	53,245	30	
14	58,2365	0,55							5	0	0	1,5800	58,357	20	
15	59,5443	0,13							3	3	1	1,5560	59,346	10	
16	62,4927	0,69							2	4	1	1,4750	62,965	5	
17	64,3947	29,41	2	2	0	1,44469	64,443	22,5	-	6	0	1	1,4550	63,932	20
18	65,98	1,47							-	5	2	5	1,4120	66,123	5
19	70,4506	0,18							3	4	1	1,3360	70,42	10	
20	77,3515	33,3	3	1	1	1,23204	77,397	22,2							

0.2Ag/Ag ₂ S			Silver, 01-087-0597						Silver sulphide, 00-009-0422						
Pos. [°2Th.]	Intensity		h	k	l	d	Pos. [°2Th.]	Intensity	h	k	l	d	Pos. [°2Th.]	Intensity	
1	25,6166	4,47							0	0	2	3,4500	25,347	10	
2	28,6975	7,62							0	2	1	3,0900	28,871	30	
3	31,2633	12,03							-	3	1	1	2,8500	31,362	40
4	33,3086	4,96							1	2	1	2,6700	33,537	20	
5	34,1344	19,04							2	2	0	2,6000	34,467	100	
6	36,4339	9,35							0	2	2	2,4500	36,65	80	
7	37,8899	100	1	1	1	2,35917	38,115	100	-	4	0	2	2,3800	37,768	50
8	40,4984	6,86							-	1	3	0	2,2200	40,606	30
9	43,2104	7,1	2	0	0	2,0431	44,229	45,7	-	1	2	3	2,0900	43,254	40
10	45,3012	0,68							2	1	2	2,0000	45,306	5	
11	45,9691	3,39							-	4	2	2	1,9610	47,259	10
12	48,5474	2,28							-	4	1	4	1,8700	48,652	10
13	53,0746	3,53							0	0	4	1,7190	53,245	30	
14	58,1157	1,43							5	0	0	1,5800	58,357	20	
15	59,8648	1,63							3	3	1	1,5560	59,346	10	
16	62,3952	1,43							2	4	1	1,4750	62,965	5	
17	64,2486	21,78	2	2	0	1,44469	64,443	22,5	-	6	0	1	1,4550	63,932	20
18	66,05	1,24							-	5	2	5	1,4120	66,123	5
19	72,1161	1,05							3	4	1	1,3360	70,42	10	
20	77,2383	18,43	3	1	1	1,23204	77,397	22,2							

Fig. S.2 N₂ adsorption–desorption isotherm of 1.4Ag/Ag₂S

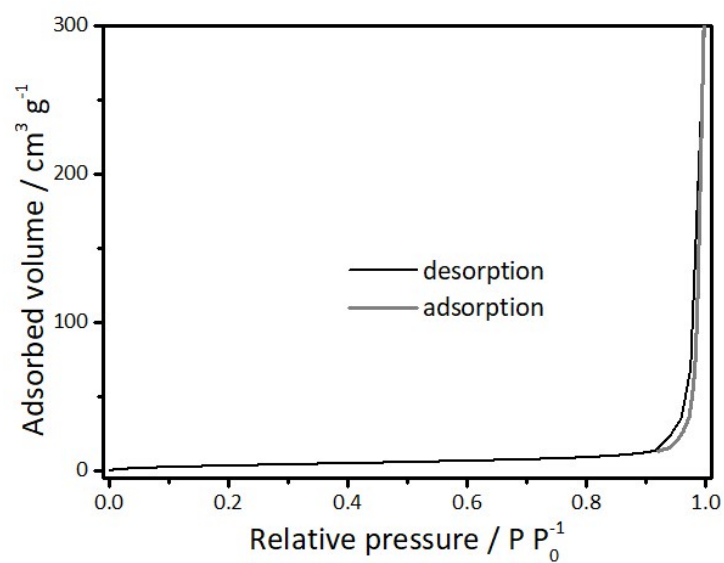


Fig. S.3 LSV curves for 0.2Ag/Ag₂S, 0.5Ag/Ag₂S, 1.4Ag/Ag₂S and commercial Pt/C normalized by the electrochemical active surface area (ECSA)

