

Supporting Information

MoS₂/CoB with Se Doping on Carbon Cloth to Drive Overall Water-splitting in Alkaline Electrolyte

Min Song¹, Ying Zhao¹, Zexing Wu* Xien Liu *

State Key Laboratory Base of Eco-chemical Engineering, College of Chemistry and Molecular Engineering, College of Chemical Engineering, Qingdao University of Science & Technology, 53 Zhengzhou Road, 266042, Qingdao, P. R. China

1: Min Song and Ying Zhao contributed equally to this work.

* Zexing Wu and Xien Liu are corresponding authors of this work.

Figure S1 XRD pattern of MoS₂/CoB-Se/CC.

Figure S2 SEM images of MoS₂/CC (a) and MoS₂/CoB/CC (b).

Figure S3 TEM (a) and S-TEM (b) images of MoS₂/CoB/CC. (C) EDX elemental mappings of Co K, Co L, Mo K, Mo L, S and B in the prepared MoS₂/CoB/CC.

Figure S4 EDX result of MoS₂/CoB/CC.

Figure S5 EDX result of MoS₂/CoB/CC.

Figure S6 (a) XPS survey spectrum of MoS₂/CoB-Se/CC. (b) High resolution XPS spectrum of B 1s in the obtained MoS₂/CoB-Se/CC.

Figure S7 LSVs of MoS₂/CoB/CC with different molar ratio of Mo and Co for HER (a) and OER (b). (c) Overpotentials to drive 100 mA cm⁻² of the prepared MoS₂/CoB/CC.

Figure S8 LSVs of MoS₂/CoB-Se/CC with different molar ratio of Mo and Se for HER (a) and OER (b). (c) Overpotentials to drive 100 mA cm⁻² of the prepared MoS₂/CoB-Se/CC.

Figure S9 CVs of MoS₂/CoB/CC (a) and MoS₂/CoB-Se/CC (b) with various sweeping rates. (c) Linear fitting of scan rates with capacitive current densities of the prepared catalysts

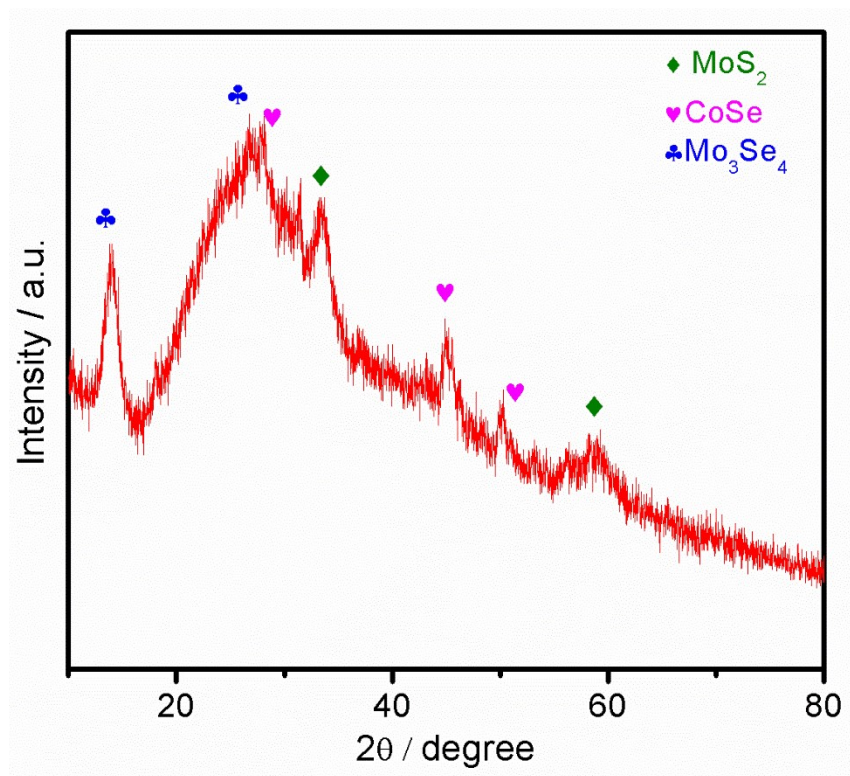


Figure S1 XRD pattern of MoS₂/CoB-Se/CC.

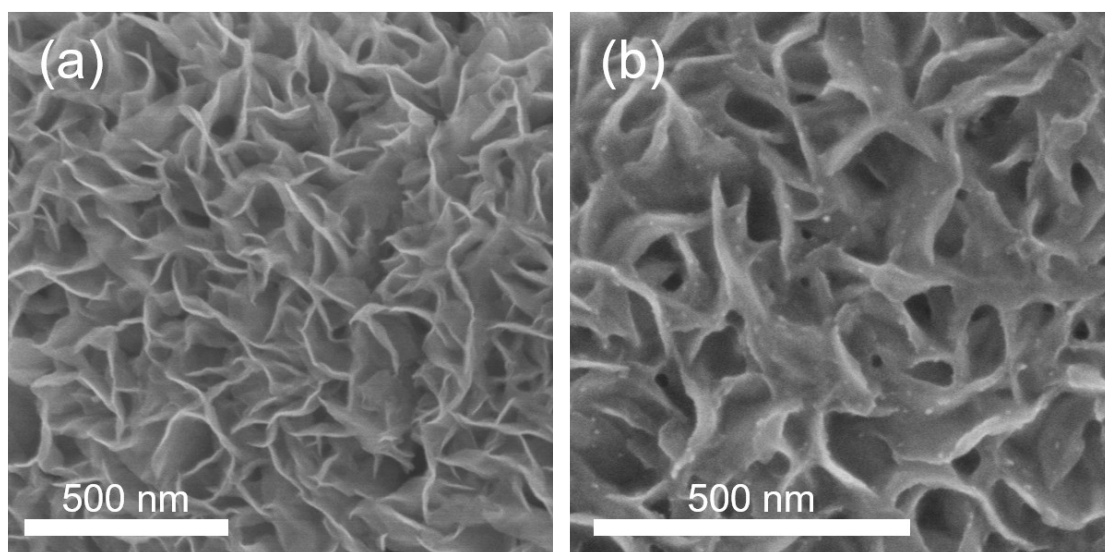


Figure S2 SEM images of MoS₂/CC (a) and MoS₂/CoB/CC (b).

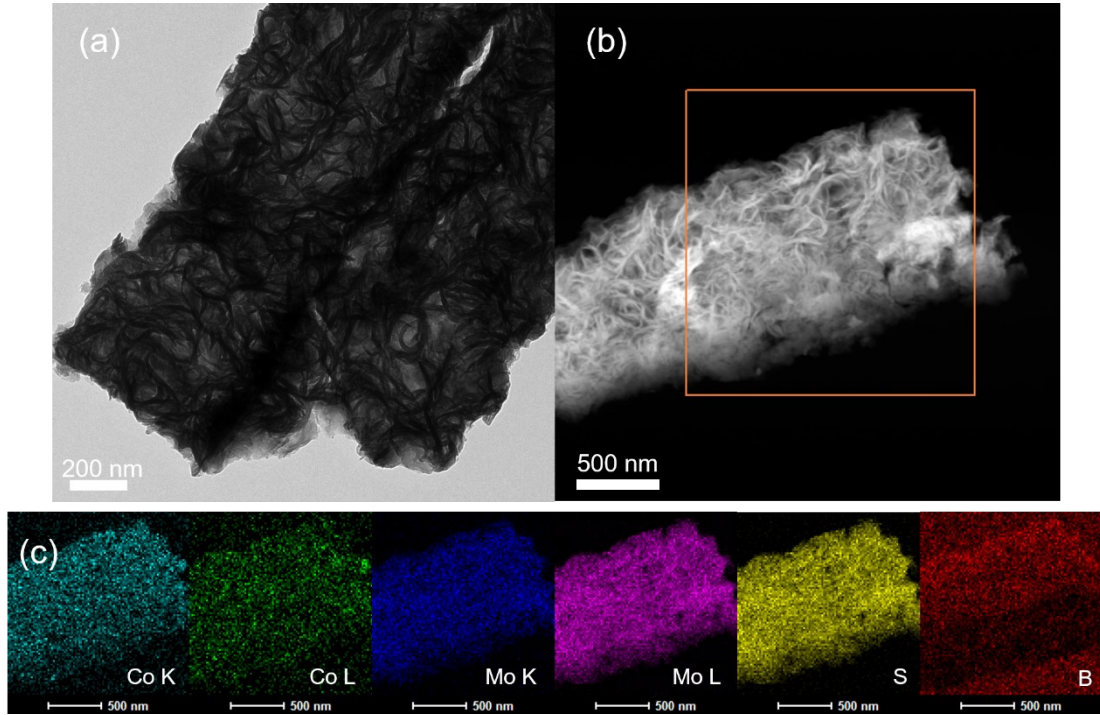


Figure S3 TEM (a) and S-TEM (b) images of $\text{MoS}_2/\text{CoB}/\text{CC}$. (C) EDX elemental mappings of Co K, Co L, Mo K, Mo L, S and B in the prepared $\text{MoS}_2/\text{CoB}/\text{CC}$.

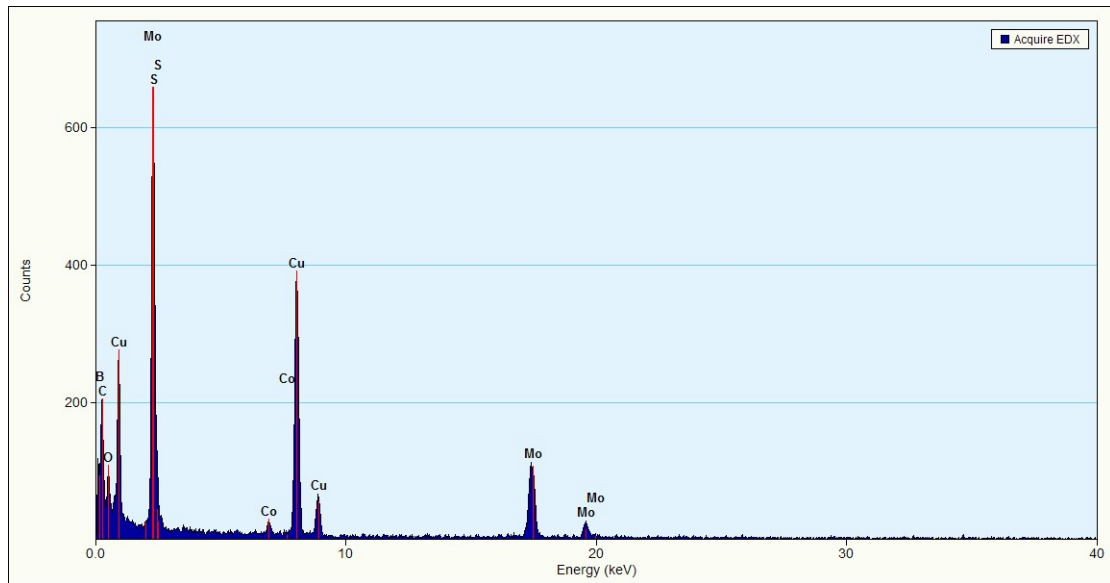


Figure S4 EDX result of $\text{MoS}_2/\text{CoB}/\text{CC}$.

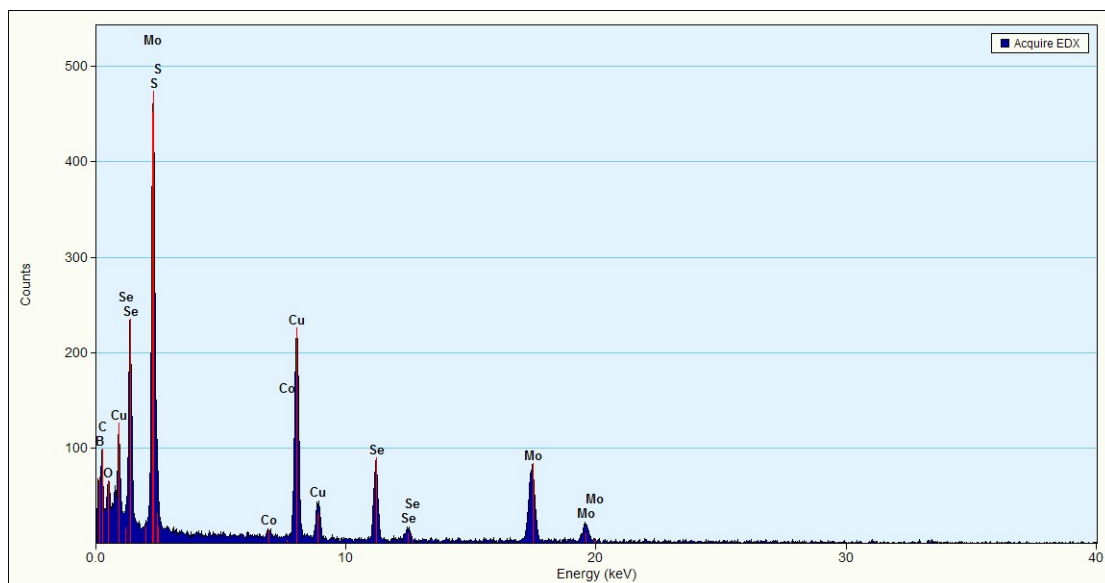


Figure S5 EDX result of MoS₂/CoB/CC.

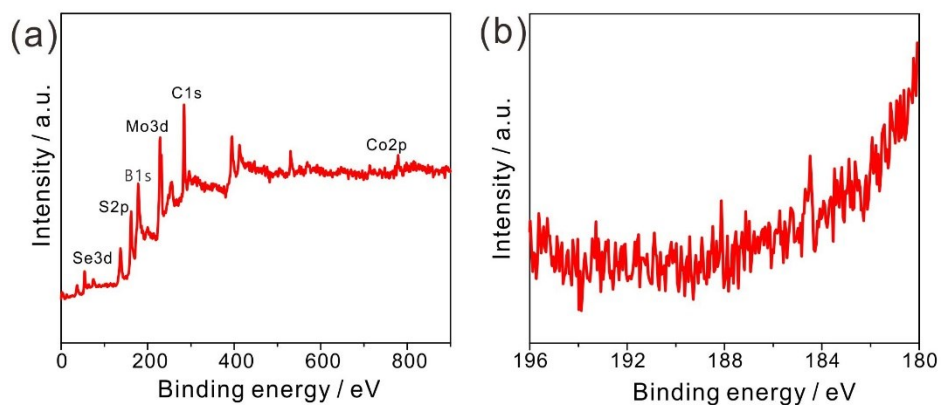


Figure S6 (a) XPS survey spectrum of MoS₂/CoB-Se/CC. (b) High resolution XPS spectrum of B 1s in the obtained MoS₂/CoB-Se/CC.

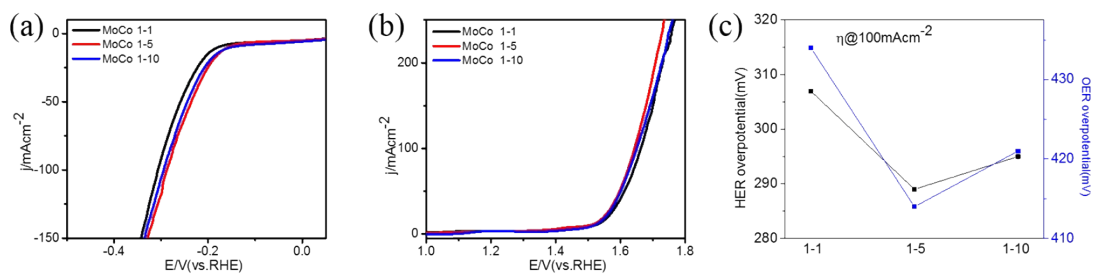


Figure S7 LSVs of MoS₂/CoB/CC with different molar ratio of Mo and Co for HER (a) and OER (b). (c) Overpotentials to drive 100 mA cm⁻² of the prepared MoS₂/CoB/CC.

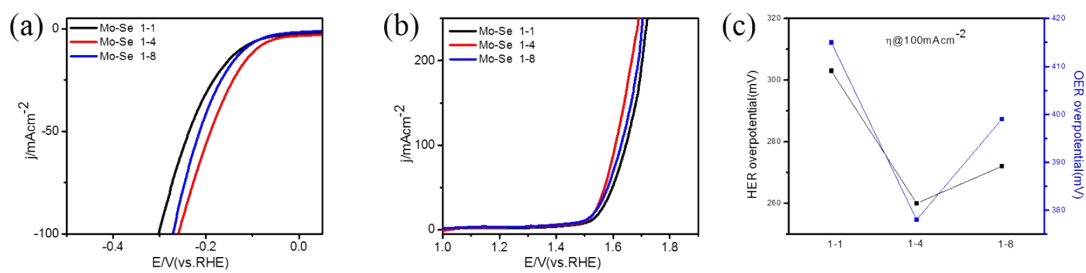


Figure S8 LSVs of MoS₂/CoB-Se/CC with different molar ratio of Mo and Se for HER (a) and OER (b). (c) Overpotentials to drive 100 mA cm⁻² of the prepared MoS₂/CoB-Se/CC.

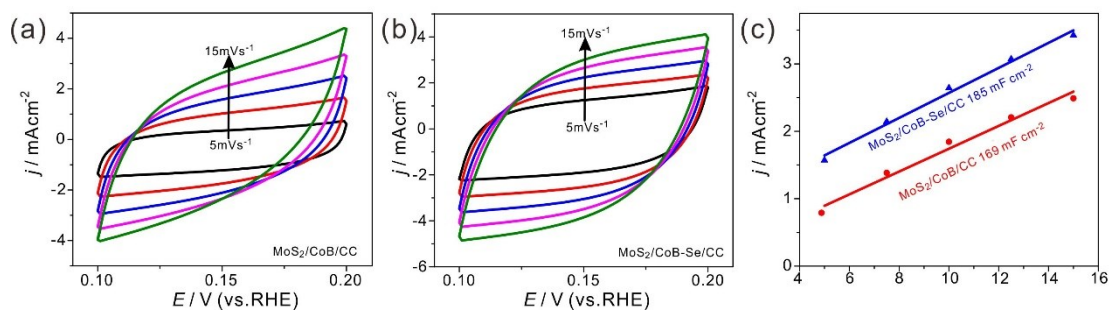


Figure S9 CVs of MoS₂/CoB/CC (a) and MoS₂/CoB-Se/CC (b) with various sweeping rates. (c) Linear fitting of scan rates with capacitive current densities of the prepared catalysts.