

## Synthesis, Thermal Stability and Electrocatalytic Activities of *meso*-tetrakis (5-bromothiophen-2-yl) Porphyrin and Its Cobalt and Copper Complexes

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Linearly *pi*-extended thienyl porphyrin namely 5,10,15,20 tetrakis (5-bromothiophen-2-yl) porphyrin, and its cobalt and copper complexes were synthesized in good and quantitative yields respectively. The chemical structure of the synthesized porphyrins was confirmed by spectroscopic techniques (FT-IR, NMR, MS, and UV-Vis). Additionally, the thermal gravimetric analysis (TGA) was measured to investigate the high-temperature stability of the porphyrins. Subsequently, the porphyrins were used as electrocatalysts for the oxygen evolution reaction (OER) in 1 M KOH. The cobalt-porphyrin complex showed the best performance in term of a low band gap value and a high catalytic activity with good stability towards the OER.

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**Keywords:** Metalloporphyrin; Thermal stability; Electrocatalytic activity; Oxygen evolution reaction.

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