Method for obtaining iron-nitrogen-carbon (Fe-N-C) electrocatalyst for oxygen recovery, in which a mixture of an imidazolium halide derivative and iron chloride is subjected to pyrolysis in an argon atmosphere, the pyrolysis product is washed with acid and water, and then dried. The mixture is subjected to pyrolysis; it contains a deep eutectic solvent formed by mixing 1-butyl-3-methylimidazole chloride with hexahydrate iron chloride ($FeCl_3 \cdot 6H_2O$), and acetylene black. Pyrolysis is conducted at 800 °C for 2 hours in an argon atmosphere, the pyrolysis product is then treated by 0.5 M H_2SO_4 at 80 °C, washed with water and air-dried at 80 °C.