Fish Bones Synthesized as a Potential Electrochemical Supercapacitator

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Fish bones is one of the waste materials that can be easily obtained in most of the fish crackers' factories across the world. Factories tend to throw away the fish bones after getting the flesh, which will leads to several pollutions. This project is about synthesizing fish bones into supercapacitor which is a long life-time battery since it has higher speed of charge-discharge potential. In this research, potassium hydroxide is used as the electrolyte to replace the lithium-ion, which is environment-friendly and non-hazardous. Fish bones are mixed with Activated Carbon (AC). The mixture is then coated onto stainless steel (SS) mesh and immersed in potassium hydroxide solution. After immersed, the meshes are being dried up to remove any water residues and compressed by using hydraulic hand press to make sure better surface contact of materials and stainless steel (SS) mesh. The electrode is immersed in potassium hydroxide for one hour and is then placed into the battery components. A cyclic voltammetry test is conducted. The tested battery is compressed with hydraulic crimping machine to produce the electrochemical supercapacitor prototype. The value of energy storage of the supercapacitor is determined by using WonaTech machine. The highest capacitance value obtained is 2.26 F/g at scan rate of 1 mVs-1. The higher the Farad value, the higher the energy capacity that can be stored. This shows that fish bones has a high potential to be synthesized as supercapacitor because the graph shows good capacitive behaviour. This project can be improved by using other natural substances that contain carbon elements. As a conclusion, fish bones has a very high potential to become one of the materials to produce electrode of electrochemical supercapacitor.