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Cigarette Butt as a Carbon Source and Its Potential Application in the Preservation of Environmental Protection

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Abstract: *Cigarette butts (CBs) are the most common type of litter on earth, with an estimated 5.5 trillion discarded annually. Apart from being unsightly, CBs pose a serious threat to living organisms and ecosystem health when discarded in the environment because they are toxic to microbes, insects, fish and mammals. In spite of the CB toxic hazard, no studies have addressed the effects of environmental conditions on CB decomposition rate. Numerous proposals have been made to prevent or mitigate cigarette butt pollution, but none has been effective; unsurprisingly, several studies have reported that CBs are the most common item retrieved by clean-up activities in public areas such as beaches and parks. The aim of this study was to collect a certain quantity of CBs, to examine the raw CB, their composition and properties, and then translate them into carbon material as a source of carbon, and as such material also examine the properties and its potential application, and therefore contribute to the preservation of the environment. Physicochemical properties of raw and carbonized CBs were studied by using element analysis, XRD (x-ray diffraction), Fourier-transform infrared (FTIR) spectroscopy, Field emission scanning electron microscopy (SEM), X-ray fluorescence (XRF) analysis.*