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Abstract	:	Cockle shells are perceived as having no important use and are commonly regarded as a waste. However, these calcium carbonate-rich materials are gaining favour as renewable resources and biomaterials precursors. The calcium carbonate (CaCO3) in the cockle shells can be decomposed into calcium oxide (CaO) through calcination. This study examined the calcination conditions of the cockle shell on two parameters; particle size and temperature. The cockle shell samples were divided into granular (CSG) and powder (CSP), calcined at 600–900 °C. Physical (bulk density, pH, proximate analysis, mass loss) and chemical (FTIR, XRD, CaO purity) properties of calcined cockle shell for every temperature for both sizes were observed. An increase in temperature indicates there are significantly different colour transitions. FTIR results reported that the CaO spectrum was observed for samples and CSP900. The XRD pattern for CSP900 shown was similar to industrial CaO at 2θ of 32.33°, 37.45°, 53.97°, 64.24°, 67.47°, 79.79° and 88.66°. The purity of calcined CSP900 and CSG900 showed the highest percentage, with 94.4 and 95.5%, respectively. Based on observation and data analysis, the cockle shell calcination process at high temperatures is not affected by the particle size of the cockle shell.