Orange mesocarp with its potentials application to remove spilled crude oil was used to prepare an activated adsorbent. Therefore, adsorption of crude oil onto the activated orange meso-carp (AOMC) was investigated. Batch experiment was adopted for the equilibrium studies and the studies were conducted for various operational parameters such as varying crude oil concentration and temperature values. The crude oil samples of A, B, C, D and E, with concentrations 6045, 4393, 8508, 11583, and 5220, respectively and temperature values varied between 10-50ºC were used for the experiment. The adsorption equilibrium was established at 40 min of adsorption time. Partition coefficients, kd (L/kg) for various samples reacted inversely with temperature and were in the ranges of 0.37-0.69, 0.65-1.11, 1.28-2.04, 1.17-1.39 and 1.23-4.53 for samples A, B, C, D and E, respectively. percentage of crude oil samples on the AOMC decreased with low crude oil hydrocarbons and the trend was shown as follows D＞C ＞A＞E＞B. Percentage ranges for samples A, B, C,D and E were given to be 86.8-88%, 60.5-72.4, 52.5-55.2, 47.9-55.4 and 45.3-49.2%, respectively. Sorption of the crude oil samples to AOMC was found to be spontaneous, exothermic, and physio-sorption controlled with G values being in the ranges of -71.49 to -21.29, -18.25 to -5.43, -30.24 to -21.11, -28.55 to -11.33 and -50.74 to -50.12 KJ/mol for samples A ,B , C , D and E, respectively. Enthalpy(H) and Entropy changes(S) were also found to be -10.28, -12.24, -8.92, -6.9, -50.28 J/mol/K and -2.92, -0.32, -0.50, -0.44, -0.01 for samples A, B, C, D and E, respectively. Activated orange meso-carp provides a veritable environmentally remediation technique for crude oil spillage.