ABSTRACT

Poly(vinylpyrrolidinone)-iron magnetic nanocomposites (PVP-Fe NCs) were synthesised and used as sorbents for the removal of cooking oil from synthetic polluted water. The synthesised nanocomposites (NCs) contained particles with average grain size of 20 to 30 nm and possessed magnetic properties, as evidenced by field emission scanning electron microscopy (FESEM) and vibration sample magnetometer (VSM) analyses. The oil sorption studies revealed that the NCs are capable to remove up to ca. 80% of oil, and this remained constant irrespective of the total oil loading. Significantly, the oil-coated NCs were easily separated from “cleaned” water through a magnetic attraction using a N50 magnet. This approach, therefore, holds great potential to be scaled up and expanded to various water systems in Malaysia such as sea and river.

KEYWORDS:
Poly(vinylpyrrolidinone); iron magnetic nanocomposites; oil removal; vibration sample magnetometer (VSM)