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Abstract	:	Microcapsule system is one of the popular approaches in producing self-healing coating. By applying specific conditions like moisture, sunlight, and pH, the reservoir of healing agents in the microcapsule will flows out and polymerize to seal the cracked areas. Thus, the microcapsule system will prolong the coating's shelf life and offer extra protection for the surface finishing. In the coating industry, vegetable oils-based resins have been widely used to replace the dependency on petrochemical resins. Jatropha oil (JO) is one of the natural abundance oils that has been planted in Malaysia. JO is classified as a non-edible oil with a high iodine value (94 to 120 mg/g). This paper aims to study the effect of agitation rate during the preparation of the microcapsule containing JO and evaluate the physicochemical properties. In this experiment, JO was encapsulated into a polyurea formaldehyde (PUF)-based microcapsule. The stirring rate was varied at 200 rpm, 400 rpm and 800 rpm during the encapsulation procedure for 3 hours. The PUF shell encapsulating the JO was verified by Fourier Transform Infrared (FTIR) analysis. In both microcapsule of neat PUF and PUF-JO, the peak of the amide group (C=O) was found at 1625 cm⁻¹, and the wagging (-NH) was detected at the band of 767 cm⁻¹. At a speed of 400 rpm, the microcapsules obtained the highest yield of core content (71.6 ± 2.7 %). Based on the physical and chemical analysis, JO 400 was selected in the preparation of coating formulation for self-healing coating application in future work.