The response surface methodology (RSM) was used to optimize the microencapsulation of shea butter (Vitellaria paradoxa). The microencapsulation efficiency of microencapsulated oil was investigated in terms of three variables including core material (shea butter oil) concentration, stirring speed and surfactant concentration (SDS). According to RSM results, the optimal conditions for microencapsulation of shea butter were determined to be 4% core material, 1000 rpm stirring speed and 0.5% surfactant concentration. Microencapsulated shea butter under the optimized conditions has provided microencapsulation efficiency, approaching 72.2%. The microcapsules prepared according to RSM results were morphologically characterized by scanning electron microscopy (SEM) and optical microscopy.