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Abstract	:	Clitoria Ternatea is one of the edible and herbaceous flowering plant that has possible health benefits including anti-inflammatory, antioxidants, anti-viral, improving vision, preventing diabetes and protecting against cardiovascular damage. Due to safety concern on synthetic colorant, the demand towards the natural food colorant is increasing. The study focus on microencapsulating Clitoria ternatea extract with maltodextrin by using spray dryer at different inlet temperatures (130°C, 150°C, 170°C and 190°C) to analyze encapsulation yield, encapsulation efficiency as well as simulated release in simulated saliva and simulated gastrointestinal. The results observed spray drying at 190°C has highest powder yield (5.30%) and encapsulation efficiency (72.04%). Rather than conferring protection to anthocyanins, microencapsulation appeared to function more as a delivery method with 23.15%±0.26 of anthocyanins release in simulated release analysis. From the finding, it was concluded that microencapsulation by spray drying at inlet temperature 190°C has been successful used to preserve anthocyanins by protecting bioactive compounds and enhance gastrointestinal delivery performance.