

Antibacterial activity of kecombrang flower extract (*Nicolaia speciosa*) microencapsulation with food additive materials formulation

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First Author	
Last Author	
Authors	Naufalin, R; Rukmini, HS;
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Abstract	<p>Kecombrang flower (<i>Nicolaia speciosa</i>) contains bioactive components of alkaloids, flavonoids, polyphenols, steroids, saponins, and essential oils as potential antimicrobials. The use of antibacterials in the form of essential oils has constraints; therefore microencapsulation needs to be done to prevent damage to the bioactive components. Microencapsulation can prevent degradation due to radiation or oxygen, easy-mix with foodstuffs and also slow the occurrence of evaporation. This study aimed to determine the effect of types of kecombrang extract, the concentration of microcapsules in food additives (NaCl and sucrose), and concentration of flower extract in the microcapsules. This study used Randomized Block Design (RBD) with 18 treatment combinations and two replications. Factors studied were types of kecombrang flower extract of (semi polar and polar extract), Food Additive types (sucrose and NaCl), the concentration of microcapsules in food additive (0%; 15%; 30% w /v). The results showed that polar and non-polar extract microcapsules produced antibacterial activity of 7.178 mm and 7.145 respectively of <i>Bacillus cereus</i> bacteria, while <i>Escherichia coli</i> was 7.272 mm and 7.289 mm respectively. A 30 percent microcapsule concentration provides antibacterial activity with inhibiting zone of 7, 818 mm for <i>B. cereus</i> and 8,045 for <i>E. coli</i>. Food Additive of sucrose concentrations showed that microcapsules produced tend to be more effective in inhibiting the growth of <i>E. coli</i> and <i>B. cereus</i> bacteria than that of NaCl, with each inhibition zone of 7.499 mm and 7.357 mm</p>
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Author	Dr RIFDA NAUFALIN, S.P