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Enhancement of Antimicrobial Activity by Edible Nano-encapsulation of *Wasabia koreana nakai*

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고추냉이의 식용 소재 나노 입자화를 통한 항균 활성 증진

강원대학교 생물소재공학과 : 서용창, 정명훈, 최운용, 김지선, 조윤윤, 안주희, 이현용*

Objectives

This study was to increase antimicrobial activities of *Wasabia koreana nakai* by edible nano-encapsulation processes.

Materials and Methods

Crude extracts of *wasabia koreana nakai* was encapsulated with lecithin. Minimum inhibitory concentration(MIC) was measured against *Listeria monocytogenes* and *Salmonella enteritidis*.

Results

- Nanoparticles of *wasabia koreana nakai* was 200 ㎚ diameter and to reduces the odd flavor.
- Minimum inhibitory concentration(MIC) of both crude and nanoparticles of *wasabia koreana nakai* was estimated as 2% MIC values for *Listeria monocytogenes* and *Salmonella enteritidis*, but the nanoparticles contained 60% encapsulation efficiency of crude *wasabia koreana nakai* extracts.
- These results can tell that nanopaticles of *wasabia koreana nakai* can be used to control pathogens in the foods by directly adding them into foods without odd flavor as well as with less toxicity.

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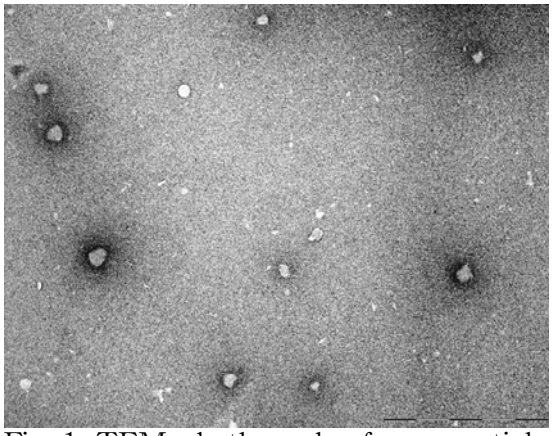

Fig. 1. TEM phothgraph of nanoparticles of *wasabia koreana nakai* encapsulated by lecithin.

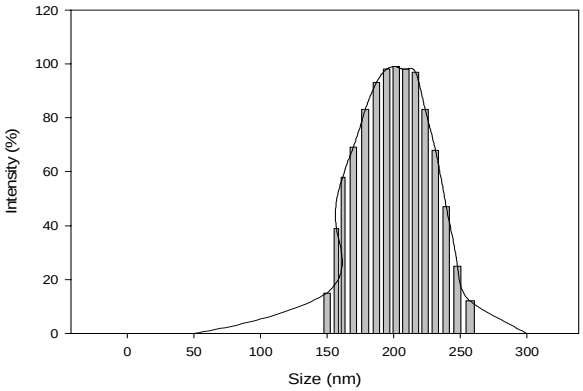

Fig. 2. DLS phothgraph of nanoparticles of *wasabia koreana nakai* encapsulated by lecithin.

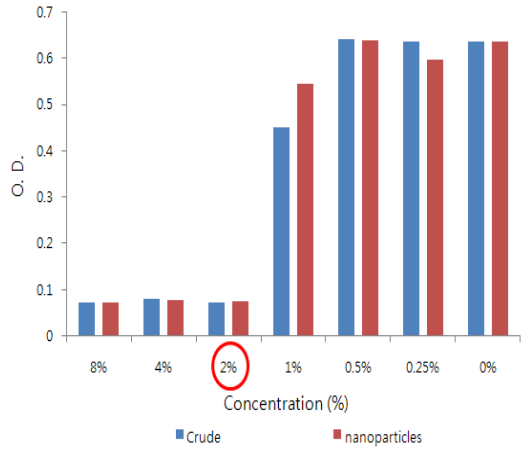

Fig 3. Measurement of minimum inhibitory concentration(MIC) of crude and nanoparticles against *Salmonella typhimurium*.

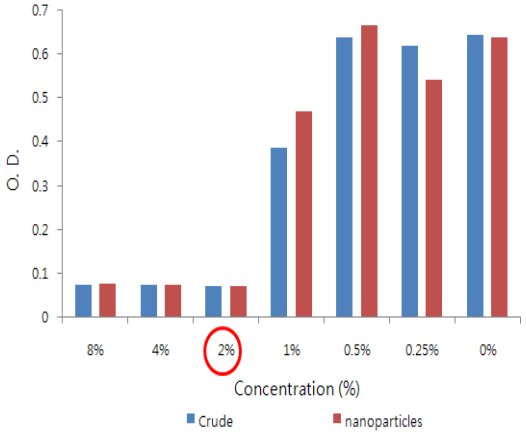

Fig 4. Measurement of minimum inhibitory concentration(MIC) of crude and nanoparticles against *Listeria monocytogenes*

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