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Influence of Hop Resins on Freeze Injury to *Escherichia coli*

[Tadashi FUKAO](#)¹⁾ and [Yoshiyuki OHTA](#)²⁾
1) *Food Research Laboratories, Nippon Shinyaku Co., Ltd.*2) *Faculty of Applied Biological Science, Hiroshima University*

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The influence of hop resins on the freeze-thawing resistance of *Escherichia coli* K-12 IFO3301 was investigated. When the freeze-thawing treatment of the strain was carried out in nutrient broth containing 0.01% of hop resins, a great decrease in the viable cell count was observed. Especially, the decrease in the count on the desoxycholate agar plate was remarkable, and no viable cells were found after 24-h freezing. Further, an extension of the lag phase was observed when the strain after freeze-thawing treatment was incubated in the nutrient broth. Namely, the freeze-thawing injury to the strain was greatly enhanced by the addition of the hop resins. It was thought that the effective utilization of hop resins for hygienic control of frozen foods is feasible.

Keywords: [hop resins](#), [freeze injury](#), [freeze-thawing treatment](#), [Escherichia coli](#)

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