

## Immunomodulatory effects of edible Chinese black ant, *Polyrhachis vicina* Roger extract by using supercritical CO<sub>2</sub>

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The Chinese black ant, *Polyrhachis vicina* Roger has been used as a traditional Chinese medicine and nutritional ingredient. In order to take full advantage of *P. vicina* resources, the supercritical fluid CO<sub>2</sub> (SF-CO<sub>2</sub>) *P. vicina* extraction on the immune systems of mice was carried out. The effects of SF-CO<sub>2</sub> *P. vicina* extraction on spleen index, thymus index and carbon expurgation experiments of mice, indicated that *P. vicina* extraction did not affect visceral index, but enhanced observably carbon expurgatory index, phagocytic index. *P. vicina* extraction could stimulate response of delayed hypersensitivity. The proliferation of ConA induced mitogenic reponse for spleen lymphocyte was also increased. The amount of hemolytic antibody in mice serum increased compared with those of the control group mice. The half of hemolysis values, acid phosphatase and alkaline phosphatase activity in serum of treated mice increased compared to the control group. Furthermore, serum NO content in all treatment groups was higher than that of the control group. Our findings suggest that SF-CO<sub>2</sub> *P. vicina* extraction has potential as a health food supplement.

**Keywords:** Food supplement, Immunological function, Insect utilization, Supercritical CO<sub>2</sub> fluid extraction, Traditional medicine