Immunomodulatory effects of *Bambusae caulis* in Liquamen on atopic dermatitis *in vivo* and *in vitro*

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**ABSTRACT:**
Bambusae Caulis in Liquamen (BCL) is one of the important traditional herbal medicine produced by heating bamboo and used for treatment of cough and asthma, etc. In the present study, we examined whether BCL suppresses the development of atopic dermatitis (AD)-like skin lesions in hairless mice induced by the repeated application of 2, 4-dinitrochlorobenzene (DNCB) and *in vitro* examination. The results showed that the transepidermal administration of BCL to hairless mice treated with DNCB inhibited the development of AD-like skin lesions by a significant decrease in skin TEWL, melanin and erythema, a decrease in serum leukocyte amounts and IgE levels, and a decrease in mRNA expression of IL-4, IL-13, and TNF-α in spleen. In addition, the mRNA expression of IFN-γ was increased. The improvement of skin lesions in BCL-treated hairless mice was also observed using the scanning electron microscope. In *in vitro* experiment, BCL also showed suppression of IFN-γ-induced expression of TARC and MDC, activation of NF-κB, and moreover significant block of IFN-γ-induced degradation and phosphorylation of IκB. However, it had no effects on phosphorylation of p38 MAPK. Collectively, these results suggest that BCL may have a therapeutic potential on skin disease such as atopic dermatitis by inhibiting Th2 chemokines which is due, at least in part, to its antioxidant capacities.

**KEYWORDS:**
*Bambusae caulis* in Liquamen (BCL); atopic dermatitis-like skin lesion; hairless mice; antioxidant; HaCaT cells

**SUB HEADING**
BCL is the nutritious liquid isolated from fresh bamboo stems which contain various biologically active components, such as flavonoid, phenolic compounds, polyphenolic compounds, chlorogenic acid derivatives, and various organic acids. Many of these ingredients have been reported to have antioxidant effect. We demonstrated that BCL suppresses the development of DNCB-induced AD-like skin lesions in hairless mice by improving skin barrier function, suppressing the overproduction of serum IgE and leukocytes, and balancing the expression of Th1/Th2 cytokines in the spleen. As expected, we directly demonstrated the antioxidant activity of BCL in this study, indicating that the antioxidant activity of BCL contributes to the inhibition of NF-κB and thereby suppresses the production of TARC and MDC in human keratinocytes.
CONCLUSION
BCL may be a potential therapeutic agent for AD in a clinical setting.

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