

미역 추출물에 의한 염증 (부종 및 홍반) 억제 효과

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Introduction

Despite progress in medical research during the past decades, the treatment of many serious diseases remain problematic (Bohlin, 1995). Inflammatory diseases remain one of the world's major health problems (Yesilada. et al., 1997). Currently, both steroidal and non-steroidal anti-inflammatory drugs are used in the relief of inflammation but prolonged use of these drugs associates with severe side effects. Consequently, there is a need to develop new varieties of anti-inflammatory agent with less side effects.

Medicinal properties of seaweed were restricted to traditional and folk medicines (Lincoln et al., 1991). Research into the active ingredients of seaweeds used in folk remedies underlines another area of drug discovery. A number of seaweed species are used in different parts of the world as traditional belief (Matsuzaki and Iwamura, 1981). As per as we are aware, however, very little published data on the anti-inflammatory effect of seaweeds has been reported. Investigation has been therefore carried out to evaluate the anti-inflammatory activity of methanol extracts obtained from several seaweeds using an in-vivo screening method.

Materials and Methods

Seaweed extracts Seaweed thalli were collected from the coast of Korea from October 2003 to January 2005. Extracts were prepared according to Jin et al. (1997).

Anti-inflammatory activity BALB/c mice (8-10 weeks of age and 25-30g of body-weight) were used to ear edema and erythema assay. Phorbol myristate acetate (PMA) (Sigma, St. Louis, USA) was topically applied to each ear of mouse at 0.2 ug in 10uL acetone with equal volume of seaweed extracts (40mg/mL). Ear edema (swelling) was measured using a spring loaded micrometer (Mitutoyo Corp., Tokyo, Japan). Erythema (redness) was measured by taking a digital photograph and compared the magenta value using Adobe photoshop 7.0. The data were analysed using Sigma Plot 2001.

Results and Discussion

Of the 37 seaweed extracts tested, *Undaria pinnatifida* and *Enteromorpha linza* showed the strongest suppressive activity against ear edema and erythema.

In this study, *Undaria pinnatifida* demonstrated suppression against PMA-induced inflammation when it applied at 40 mg/ml on the time of 20 minutes before PMA application. The study also revealed that *U. pinnatifida* blade showed higher anti-inflammatory activity ($3.46 \pm 1.9\%$ and $3.71 \pm 1.5\%$ of relative edema and erythema, respectively) than other parts. Adult blade showed stronger activity than young blade.

U. pinnatifida is still used for diet during postpartum period in Korea and Japan. Work is in progress to isolate the main active compounds responsible for the anti-inflammatory activity.

References

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