

## PC-2

# Effect of photosensitizer against anti-red tide substances from Korea seaweed extracts

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## Introduction

Many bioactive photosensitizers have been isolated from plants and some of these possess antiviral activities which depend on UVA(320-400nm) and visible light. Many complex quinonoids have been isolated from plants and recently some of them, such as hypericin and hypocrellin, have been shown to possess light-dependent antiviral activities. These compounds only exert their desired biological activities in the presence of long wavelength ultra-violet UVA but these activities are also strongly influenced by chemical structure(Hudson et al, 1995). The importance of light in the use of certain medicinal plant extracts has been appreciated, if not understood, for centuries. Also, many seaweed extracts will effect photo(UVA, visible light) for algicidal activity.

Recently, we have investigated effects of seaweed extracts for algicidal activity against the growth of the toxic microalga *C. polykrikoides*(Jeong et al, in press).

In this study, we tested effect of photo against anti red-tide substances of extracts from Korea seaweed.

## Materials and methods

### Plant material

For the convenient use of samples, seaweed tissues were dried completely for 3-7d at room temperature and then ground to make powder using a coffee grinder for 5min. Seaweed extracts were processed by Jin et al method(Jin et al, 1997).

### Cell and culture condition

The red tide organism, *C. polykrikoides* used in this experiment were maintained in PE medium. Light intensity of 2000lux was used with overnight at 20°C. Bioassay Approximately 1000 cells of *C. polykrikoides* was inoculated in a 96 well plate which contains 200µl of PES medium per a well. After a day, the cell numbers were counted

under a microscope. The growth rate was calculated by dividing the test cell number by the cell number in control.

#### Photosensitizer

Used light were UVA(365nm), VIS(white-photo), combined UVA and VIS. Phot quality was 4KJ(J.B. Hudson et al, in press). we tested three conditions. the first, *C. polykrikoides* was added to the extract before the light treatment. the second, *polykrikoides* was added to the extract after the light treatment. the third, extracts treat light treatment were stored in the dark for various times before the addition of *C. polykrikoides*.

#### Results

For methanol extract, effect of light radiation after mixing extracts and *C. ploykrikoid* were increased algicidal activity aganist red tide of the extracts from *Kjellmaniel crassifolia*, *Gigartina intermedia*, *Porphyra yezoensis*, *Pachymeniopsis elliptica*, *Laminar Gracilaria bursa-pastoris* and after the light treatment was increased activity aganist tide of the extract from *Gracilaria bursa-pastoris*. Before the addition of *C. polykriko* extracts treated light treatment were stored in the dark for various times. *Ecklonia ca* was increased algicidal activity, while *Endarachne binghamiae*, *Corallina pilulifera* were decreased algicidal activity. *Gracilaria bursa-pastoris*, *Lomentaria catenata* were not e

For water extracts, effect of light radiation after mixing water extracts and *C. ploykrikoides* and after the light treatment were not showed increased and decrease inhibition activity aganist red-tide. Before the addition of *C. polykrikoides*, extracts trea light treatment were stored in the dark for various times. *Endarachne binghamiae*, *Corall pilulifera* were decreased algicidal activity. *Gracilaria bursa-pastoris*, *Lomentaria ca* were not effect.

#### References

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