Antibiotic Activity of some Marine Algae of Puerto Rico*)

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Antibiotics of marine organisms have received little attention up to the present, in comparison with the antimicrobial substances produced by land organisms. Whereas, during the past decade thousands of papers were published about the inhibitory products of terrigenous microbes, only about a score of contributions have appeared on various aspects of aquatic antibiotics. For the purpose of orientation, a few representative papers dealing with antimicrobial substances in aquatic organisms will be discussed here briefly.

Among early contributions to the literature on algal antibiotics was the series of papers by Pratt and colleagues, who described the production and activity of the fatty acid chlorellin, that accumulates in cultures of the green alga *Chlorella vulgaris* (See Pratt, 1948). Another interesting example of inhibitory substances among fresh water algae is found in the antibiosis demonstrable between *Haematococcus* and *Chlamydomonas* (Proctor, 1957).

The presence of antibiotic substances in seaweeds was reported by Pratt and colleagues (Pratt et al. 1951) and also by Vacca and Walsh (1954). It was suggested by Mautner, Gardner and Pratt (1953) that the active substance in *Rhodomela larix* may be a brominated phenol. More recently a contribution has appeared on antibacterial activity of ether extracts from British seaweeds (Chesters and Stott, 1956), among which *Halidrys siliquosa*, *Pelvetia canaliculata*, *Laminaria digitata*, and *Polysiphonia fastigiata* were especially noteworthy. A biological study of antimicrobial marine algae at Kiel (Ross, 1957) showed that among 27 species, the most active were the following: *Fucus serratus*, *Rhodomela subfusca*, *Desmarestia aculeata*, and *Delesseria sanguinea*.

Pertinent references on the ecology of antibiotic substances may be found in the review of Bryan (1957). Another interesting discussion of growth-promoting and inhibiting substances in the sea has been published by Nigrelli (1958). An unusal case of antibacterial action was studied by Burkholder and Burkholder (1958) in gorgonian corals, which are algal-polyp symbionts, in some ways physiologically similar to the terrestrial symbiotic lichens.

Antibacterial activity in marine phytoplankton has been demonstrated in Antartica recently by Sieburth (1959) and Sieburth and Burkholder (1959). The antibiotic-producing alga in Antartic waters is *Phaeocystis Poucheti*, which is eaten by *Euphausia*, that in turn is the staple diet of penguins. The gastrointestinal microflora of penguins appears to be modified by their antibiotic foodstuffs.

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