

Antibacterial Effects of Marine Macroalgae the Coast of Ordu Province in TurkeyÖmer Ertürk¹, Beyhan TAŞ¹, Zeynep KOLÖREN¹, Onur KOLÖREN²¹Department of Molecular Biology and Genetics, Faculty of Arts and Sciences, Ordu University, Ordu² Department of Plant Protection, Faculty of Agriculture, Ordu University, Ordu, Turkey
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Aim of the study: Four marine macroalgae (*Cystoseira barbata*, *Corallina officinalis*, *Gelidium spinosum*, *Ulva intestinalis*) collected from the coast of Ordu in Turkey were tested for the antibacterial and antifungal activity of ten bacteria and one fungus by the paper disc agar diffusion methods.

Material and Methods: The antimicrobial activity of alg samples were studied using ten bacteria (*Pseudomonas aeruginosa*-ATCC27853, *Proteus vulgaris*-ATCC7829, *Escherichia coli*-ATCC25922, *Klebsiella pneumoniae*-ATCC13883, *Listeria monocytogenes*-ATCC7677, *Clostridium perfringens*-ATCC313124, *Salmonella enteric*-ATCC14028, *Bacillus subtilis*-B209, *Micrococcus luteus*-B1018, *Staphylococcus aureus*-ATCC6538 and and one fungi *Candida albicans*-ATCC10231. The species of bacteria were grown in Mueller Hinton Agar (Merck) and Mueller Hinton Brot (Merck). *C. Albicans* was grown in Sabouraud Dextrose Broth (Difco) and Sabouraud Dextrose Agar (Oxoid). The concentrations of bacterial suspensions were adjusted to 10^8 cells/ml, while those of fungal suspensions to 10^7 cells/ml. Antibacterial and antifungal activities were measured using methods of diffusion disc plates on agar. Bacterial and fungal cell concentrations were adjusted to 10^8 and 10^7 cells/mL by measuring spectrophotometrically. Inhibition zones were mesaured after incubation at 37°C for 48h. All experiments were done in 3 replicates.

Results: Among the four algal samples tested, the largest inhibitory zones were observed with the extract of *Cystoseira barbata* (22.41 ± 1.74 mm) against *Pseudomonas aeruginosa*. The extract of *Ulva intestinalis* showed the highest anti-fungal activity against *Candida albicans* with 26.03 ± 0.09 mm inhibition zone. *M. luteus* has the lowest inhibitor activity against the tested organisms. In addition, the extracts of *C. officinalis* and *C. barbata* showed strong inhibitor activity against *S. enteritidis* and *B. subtilis*, respectively.

Keywords: Antimicrobial effect, *Cystoseira barbata*, *Corallina officinalis*, *Gelidium spinosum*, *Ulva intestinalis*