Antimicrobial production by some species Of cyanobacteria isolates from freshwater

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Some Cyanobacterial species could be a prolific resource for substances with antibacterial activity. Metabolites of some species of Cyanobacteria are providing potential leads for the development of new pharmaceutical compounds. Therefore, the main objective of the present work is to investigate the antibacterial activity of various extracts of two types of Cyanobacterial species Anabaena wisconsinense and Oscillatoria curviceps against some bacterial species which cause diseases in -freshwater fish by separation of the active materials from the two types of micro algae and identify it. Study the immunostimulant affect of these types of algae in Nile tilapia O. niloticus to produce fish have more ability to resist the bacterial diseases and free from antibiotics residue. Anabaena wisconsinense was added to commercial basal diet (crude protein 30 %) and then divided into three parts. The first part was mixed with (1 %) of living A. wisconsinense. The second part was mixed with (2 %) of living A. wisconsinense. The third part was mixed with the BG11 medium free from algae (control group). Fish were hand-fed once daily in 28 days to evaluate Anabaena effect as immunostimulant and growth promoter at a rate of 3% of body weight. The fish were weighed at day 7, 14, 21 and 28 from the beginning of the experiment. At the end of experimental period, fish was challenged i.p. with A. sobria, Actinobacter anitratus and A. veronii and kept under observation for 15 days.The results can be summarized as follows:1- Methanolic extract of Anabaena wisconsinense had antibacterial activity with all tested bacteria.2- Ethanolic extract of Anabaena wisconsinense had antibacterial activity with all tested bacteria except Ps. fluorescence and Aerobacter sp.3- Methanolic extract of Oscillatoria curviceps had inhibition zone with all tested bacteria except Ps. fluorecence, Pseudomonas sp. and Aerobacter sp.4- Ethanolic extract of Oscillatoria curviceps had antibacterial activity with Moraxalla kingil, A. sobria, A. veronii, A. hyDROPhila, Actinobacter anitratus, A. jandaei, Ps. anguilliseptica, and Haemophilus aphrophilus.5-The percentage of antibiotics resistance was recorded as 35.4 %, whereas 64.6 % was reported as antibiotic sensitivity case.6- Dietary supplementation of A. wisconsinense has proved effective at enhancing growth performance; feed utilization, Condition factor (CF), and Specific growth rate (SGR).7- Anabaena wisconsinense supplemented diet enhanced haematocrit value and serum lysozyme activity.8- At the fourth week of feeding experiment, Anabaena wisconsinense

supplemented diet enhanced NBT activity.9- The tilapia fed 1 % A. wisconsinense supplemented diet had the best effect on total bacteria of fish intestine.10- The relative level of protection (%) after challenge with Aeromonas veronii, Aeromonas sobria and Actinobacter anitratus indicated that A. wisconsinense supplementation diet (immunostimulant) had a positive influence on the relative level of protection with O. niloticus by increasing fish resistance to the infection. The Cyanobacteria diet groups reduce mortality which induced by pathogenic bacteria when compared with the control group.11- Antibacterial Anabaena protein (AAP) purified from the methanolic extract of Anabaena wisconsinense was showed two subunits, 80 and 40 kDa polypeptides with antibacterial activity which were examined on some kinds of tested bacteria.12- The available (IR & mass spectra) data of antagonistic fraction separated from Oscillatoria curviceps referred to the presence of aliphatic fatty acid with an m.wt. 354. The confirmation of this structure needs more spectral data (H&C-NMR), this compound is tentatively identified as n-tricosanoic acid (CH3 (CH2)21COOH).