

## Long-chain wax esters and diphenylamine in fire coral *Millepora dichotoma* and *Millepora platyphylla* from Saudi Red Sea Coast\*

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**SUMMARY:** The characterization of the non-protein constituents of two species of fire corals *Millepora dichotoma* and *Millepora platyphylla*, exhibits very interesting results. The compounds were identified by gas chromatography-mass spectrometry (GCMS) and nuclear magnetic resonance (NMR) spectroscopy. The solvent extracts of the two species revealed four wax esters. The compounds were identified as C<sub>30</sub>H<sub>60</sub>O<sub>2</sub>, C<sub>32</sub>H<sub>64</sub>O<sub>2</sub>, C<sub>34</sub>H<sub>68</sub>O<sub>2</sub> and C<sub>36</sub>H<sub>72</sub>O<sub>2</sub> respectively. The presence of these compounds has been reported previously in different marine organisms as well as in marine samples. It is interesting that there were some variations in the number and nature of isomers of similar wax esters reported earlier. Long-chain wax esters are normally waxy in nature and their presence in fire coral plays a vital role in the nutrient transfer to the coral mass. They may also act as a protective coating of the nematocyst of dactylozoid. The coral species were also subjected to mild acidic hydrolysis, followed by neutralization and partitioning between water and ether. The organic phase was dried and purified by column chromatography and thin layer chromatography (TLC). Diphenylamine was revealed as the main product in one of the fractions. It is worth noting that diphenylamine is reported for the first time as a marine natural product. Diphenylamine is known to be toxic and causes allergic reactions to the skin, so it can be considered as responsible for the stinging property of fire coral.

**Key words:** long-chain wax esters, diphenylamine, solvent extraction materials, acid hydrolysate products, fire coral, *Millepora dichotoma*, *Millepora platyphylla*, Red Sea.

### INTRODUCTION

Fire corals are the common inhabitants of fringing reefs. The name comes from the burning sensation inflicted by the nematocyst of the dactylozoid or defensive polyp. These corals have long been known to possess a stinging property. Divers have experienced intense pains and rashes on the face and

the skin when coming in contact with such corals. The fire corals were identified as belonging to the genus *Millepora* (Darwin, 1851). Although nine species have been identified world-wide (Lewis, 1989), only two of these species have been observed along the coast of the Saudi Red Sea, i.e. *Millepora dichotoma* and *Millepora platyphylla*. The symbiotic algae were found to be *Gleodinium viscum* (Banazek *et al.*, 1993). As the main constructive element of the coral reefs, corals are capable of com-

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