



**ISOECOL 2018**  
Viña del Mar, Chile  
From July 30 to August 3, 2018



## **Trophic plasticity of scleractinian corals under contrasted environmental conditions: evidence from stable isotope analysis**

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Most scleractinian corals can derive nutrition either autotrophically or heterotrophically, which allows them to use diverse trophic pathways. Therefore, when facing environmental changes, these organisms are expected to demonstrate an intrinsic ability to acclimatise through trophic plasticity. Despite the ecological importance of these corals, our understanding of their trophic plasticity is currently impaired by a lack of rigorous research approaches; a failure to take into account the intraspecific variability of coral species and an oversimplification of the proxies of heterotrophic habits (e.g. corallite diameter). In order to understand how trophic plasticity could allow them to acclimatise, this study proposed to assess the trophic plasticity of three morphologically contrasted coral species (*Stylophora pistillata*, *Porites* sp and *Tubastraea coccinea*). We determined the stable isotope ratios of carbon and nitrogen in the coral host tissues and algal symbionts (when present) and compared these in corals inhabiting areas around Taiwan characterised by contrasted temperature (from high to low latitudes) and light levels (from shallow to mesophotic waters). For each area, we evaluated intraspecific and interspecific trophic variability by estimating and comparing coral trophic positions and trophic niches. Our results provide essential insights into the trophic plasticity of scleractinian corals and how these species might adjust their nutrition in response to environmental changes.

This research was supported by the Ministry Of Science and Technology (Taiwan, no. 106-2611-M-002-008). NS was funded by a National Taiwan University postdoctoral fellowship (Taiwan, no. 106R4000) and is currently funded by a Research Project of the Fund for Scientific Research (Belgium, PDR 31240620).