GENETIC COMPARISON OF *DONAX STRIATUS* POPULATIONS ALONG THEIR GEOGRAPHICAL DISTRIBUTION

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ABSTRACT
Shells of *Donax striatus* sampled from apopulation at Cocal Beach, Trinidad(Wade 1967), and from apopulation at Praia do Tibau, Brazil (own observations),show strong variation in shell shape, size and colour. In order to estimate the genetic relatedness among geographically distant *D. striatus* populations acrossits geographical distribution, genetic analyses will be carried out.

Keywords: population genetics, bivalves, Brazil

INTRODUCTION
Even though the genetic structure among populations represents the effect of the interaction among gene flow, genetic drift, selection and mutation, the relative importance of each of these factors may often be difficult to separate (Balloux & Lugon-Moulin 2002). For many species, their geographical distribution exceeds the distances that can be covered by any single dispersing individual.This can lead to a genetic structure that is characterized by a correlation between genetic and geographical distance between populations (isolation by distance;Wright 1943). However, in some organisms empirical findings of genetic differentiation may be difficult to reconcile with knowledge on the biology of the species. For most marine organisms, including marine bivalves, the mechanisms affecting genetic structure still remain largely unknown. Exposed intertidal sandy beaches are commonly dominated by surf clams of thegenus *Donax*(Ansell 1983). Being the main primary consumers in soft bottom communities they can contribute up to 95 % of the total biomass (McLachlan *et al.* 1981; Arntz & Fahrbach 1991). Despite the key role of surf clams in sandy beach ecosystems and theirimportance forcommercial and recreational fishery, the population genetic of most donacids remains still unknown. *Donax striatus* Linnaeus, 1767 (Bivalvia: Donacidae) inhabits the intertidal zone along the Caribbean (south of Gibara, Cuba) and western Atlantic coast(north of AreiaBranca, Brazil)(WoRMS 2010). The taxonomy of thistropical surf clam is controversially discussed (Coan 1983). The high variability in shell shape, size and colour, confirmed by our pilot survey in May 2007 at the Brazilian beach Tibau, raised doubts concerning the taxonomic identity of the species(Wade 1967). As morphometric comparisons revealed significant differences, the present project aims (1) to establish a marker for molecular barcoding,(2) clarify the taxonomy of the speciesand (3) estimate the genetic relatedness among geographically distant populations of *D. striatus*.

MATERIALS AND METHODS
Specimens of the *D. striatus*were sampled at seven beaches of the Brazilian state Ceará (from 2°52'S, 40°57'W to 4°38'S, 37°28'W).*D. hanleyanus* wassampled as the out-group from the Argentinean beach Santa Teresita(36°32'S, 56°41'W). In order to facilitate the diffusion of the preservative into the tissue, the shells were broken or sheared immediately before conservation in 96 % ethanol. DNA was extracted with the QiagenDneasy kitaccording to the manufacturer's recommendations. 10-100 ng DNA were used forPCR-amplification of a fragment of the cytochrome oxidase I (Cox1) using theprimers HCO (5'-TAAACTTCAGGTGACCAAAAAATCA-3') and LCO (5'-GGTCAACAAATCATAAAGATATTGG-3') (Folmer *et al.* 1994) in 25 µl reactions.PCR products were purified using the Qiagen DNA purification kit according to themanufacturer's recommendations. Sequencing was conducted on an ABI 3730xlautomated sequencer. Sequence data were processed and aligned using

ClustalW. Phylogenetic analysis was performed using the software package for inference of evolutionary treesPAUP* version 4.0beta10.

PRELIMINARY RESULTS

Sequence data from the Cox1proved useful for species discrimination withinthe genus *Donax*: There is no molecular evidence for differentiation at the species level within *D. striatus*.By the deadline of the abstract submission the present project is already in process. Therefore, results of the genetic comparison of *D. striatus*across its geographical distribution will be presented at the author's poster.

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