

UNIVERSITY OF RUHUNA

BACHELOR OF SCIENCE IN FISHERIES AND MARINE SCIENCES DEGREE

Level IV Semester I - July/August 2015

FSC 4121 – Information Literacy and Library Research Skills
Essay paper

Answer three questions only

Time: 01 hour

01. Read the following abstract and answer the following questions.

(100 marks)

Abstract

*Natural populations of Mediterranean commercial sponges have declined substantially over recent decades. The present study explored the distribution of genetic diversity of the endangered bath sponge *Spongia lamella* along the western Mediterranean and the Portuguese coast. Seven microsatellite markers were used to genotype 231 individuals scattered over nine populations. Basic genetic descriptors and population genetic analyses based on F_{ST} test, analyses of the molecular variance (AMOVA), Bayesian clustering, dissimilarity analysis of principal components, and demographic analyses were performed. Genetic differentiation between populations was large and highly significant (global $F_{ST} = 0.236$, $P < 0.001$). AMOVA and Bayesian analyses showed genetic differentiation among the Atlantic, Balearic, and North Mediterranean areas ($F_{CT} = 0.129$, $P = 0.003$). Restricted gene flow owing to short-distance larval dispersal and hydrographical barriers may be playing an important role in genetic differentiation. Recent bottlenecks were also detected for most populations of this sponge. The high levels of inbreeding, sub-structuring, and modest levels of genetic diversity that characterized populations of *S. lamella* (mean value of genetic diversity 0.512), may compromise its long-term survival. Only one population, from the Gibraltar Strait, presented high levels of genetic diversity (Ceuta, genetic diversity = 0.657), indicating a hotspot of genetic diversity for this species with special relevance for its conservation. Disease outbreaks and overexploitation may be the most important causes of genetic diversity impoverishment of *S. lamella*. Future conservation guidelines should focus on preserving genetic diversity within genetically impoverished populations by limiting exploitation, and increasing population size. Transplanting specimens from areas with high values of genetic diversity to areas with low diversity values or to areas that have recently experienced demographic declines could reverse the local and global recession of this species.*

- a. What was the purpose of the study?
- b. What data were gathered for the study?
- c. What was the method used to perform the study?
- d. List four (4) findings of the study
- e. What is the recommendation of the study?

02. Explain the factors to be considered when preparing an oral presentation. (100 marks)
03. i. What is copyright ownership? (50 Marks)
ii. Discuss the importance of Fair Use in Education and Research. (50 Marks)
04. i. What is a Database? (10 marks)
ii. **Briefly** explain any **two** of the following:
a. Visible web
b. Invisible web
c. Subject Directories (40 marks)
iii. Briefly discuss the **advantages and disadvantages** of subject gateways (50 marks)

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