

Biological research snapshots



The first recorded sighting in Malta for 90 years of this rare fern, *Asplenium trichomanes*. Photo: Karl Agius

It's time again for the University's annual Biology symposium to showcase the biological research conducted on our shores.

With so much talk about the need to conduct research in areas that can generate new employment opportunities in our country, such as IT and engineering, politicians tend to sideline other areas of research.

When assessing the relevance of a particular research area, we should not look only for short-term deliverables, which might include patents and business opportunities, but also for contributions whose relevance to the country cannot be directly quantified.

The rapidly expanding field of environmental economics is seeking to put an elusive financial tag to services provided by ecosystems. But can anyone really quantify the benefits of monitoring bathing water quality, for example, or from mapping the distribution of a rare plant species?

Funding biological research goes beyond scoring political capital; besides holding the promise of exciting biotechnological advances, it is also a means to preserve our natural heritage.

Addressing the symposium, Rural Affairs Minister George Pullicino rightly said that the Biology Department should seek to publicise the contents of Biology Abstracts, the booklet containing research conducted by the department's staff and students.

Marthese Azzopardi's doctoral research project deals with the investigation of rocky shore communities as indicators of environmental conditions, through the assessment of a number of biotic indices. That of Mark Dimech deals with the management implications (including perception of local fishermen) of the local Fisheries Management Zone, which extends for 25 nautical miles, covering almost 12,000 square kilometres around Malta.

The five Master's projects were mostly a continuation of research projects started at undergraduate level.

Julian Evans studied the behaviour of the endemic (and rare) Maltese topshell, *Gibbula nivos*a. Deborah Vella studied the colonisation by sessile biota of artificial reefs off Spinola Bay, Francesca Pia Gravino studied the ecology of three local cartilaginous fish species (several cartilaginous species are currently endangered as a result of overexploitation). Ali Ahmed El Fituri studied the efficacy of the prickly pear extract TEX-OE on vibriosis in gilthead sea bream (a common aquaculture species).

Gilbert Haber studied behavioural and ecological aspects of the yelkouan shearwater at Rđum il-Madonna, Mellieħa; the same bird species is being studied by Birdlife as part of a Life project.

The range of subjects covered by the undergraduate projects is equally as impressive.

Karl Agius, Joseph Azzopardi and Malcolm Borg conducted surveys on vegetation at Wied Magħlaq, Ta' Ġordan Hill, Gozo, and Ġnien Inġraw, Mellieħa respectively.

Manuel Attard and Matthew Mifsud studied the effects of the extract TEX-OE on the haematological (blood-related) properties of bony fish, and on the quality of gilthead sea bream, respectively, while Kurt Catania monitored seawater quality at the newly-established Marine Protected Area at Dwejra, Gozo.

Christine Fiott studied the effect of extracts from the bitter (or Seville) orange on cancer cell lines. Nicola Darmanin studied the antibacterial and antioxidant properties of Maltese propolis, a waxy substance collected by worker bees from local plants to seal cracks in their hive.

Audrey Caruana Mifsud conducted genome mapping of the Maltese ox. Mariette Gatt studied in vitro propagation techniques for the Sandarac gum Malta's national tree.

Gianella Pisani conducted an assessment of eutrophic conditions in Marsaxmett Harbour and Msida Creek (also as part of Malta's Water Framework Directive obligations).

Justine Schembri studied the impacts of the beach replenishment at St George's Bay on soft-bottom, submerged biological communities.

Giulia Micallef studied the Tilapia, a very popular aquaculture fish species in Guatemala. Steve Mizzi conducted a study of the red palm weevil, a somewhat insidious alien species of beetle that is infecting a local palm species.

Joseph Piscopo studied the behaviour of the alien crab, *Percnon gibbesi*. Josianne Williams' study concerned the local distribution of sandflies and diseases they cause.

Nadine Sciortino studied the effects of extracts from the common coastal False Yellowhead plant on cancer cell lines. Annabelle Zammit's research project dealt with the impact of the Ras il-Hobz sewage outfall in Gozo.

Alexandra Fiott studied the population genetics of the sea-slug, a common isopod that scurries around our rocky shorelines. Elaine Azzopardi's study focused on the CD59 gene in Maltese coeliac patients (people who are allergic to gluten).

Mark Anthony Zammit studied the impact of the prawn dredge known locally as gangmu while Edwin Zammit analysed the antifungal properties for extracts from the bay laurel (randa).

The research project supervisors included Patrick Schembri (marine ecology), Joseph Borg (ecological assessment and monitoring), Victor Axiak (coastal water quality monitoring), Carmelo Agius (aquaculture and biotechnology), Joseph Buhagiar (biotechnology and vegetational assemblages), Adriana Vella (genetics and conservation biology), David Mifsud and David Dandria (entomology), and Edwin Lanfranco (vegetational assemblages).