Destaques

Adaptation in the intertidal habitat and a new *Fucus* species

(Adaptação na zona intertidal e uma nova espécie de *Fucus*)

Laboratory and field experiments led by researchers of CCMAR, CIMAR-Laboratorio Associado at Universidade do Algarve in Portugal, identified physiological, morphological, and genetic differentiation between the genetic taxa *Fucus. spiralis*, *F. spiralis* var. *platycarpus* and *F. vesiculosus* and elevated *F. spiralis* var. *platycarpus* to the species level, as *F. guiryi*, Gerardo Zardi., Katy Nicastro, Fernando Canovas, Joana Ferreira Costa, Ester Serrão and Gareth Pearson, combined analyses of genetic and phenotypic (physiological and morphological) traits of co-existing *Fucus* spp. in Northern Portugal, and investigated the potential for physiological resilience to emersion stressors to act as an isolating mechanism in the face of gene flow.

The genus *Fucus* is the most species-rich within the family Fucaceae. They are intertidal, canopy-forming algae that provide habitat structure and shelter for many others components of the ecosystems, and are thus key species for conservation of marine biodiversity. Congeneric, externally fertilizing fucoid brown algae occur as distinct morphotypes along intertidal exposure gradients despite gene flow.

In Europe, *Fucus vesiculosus* and *F. spiralis* occur together from Northern Portugal northwards (sympatric range), whereas from Northern Portugal southwards towards Morocco *Fucus vesiculosus* disappears from the open coast, occurring only inside estuaries and coastal lagoons where no other *Fucus* species is present (allopatric range). About a century ago, several *Fucus spiralis* morphotypes were described as morphological varieties, among these *F. spiralis* var. *platycarpus* (Thuret).

The extent of evolutionary divergence of phenotypes between habitats is predominantly the result of the balance between differential natural selection and gene flow. While natural selection may favour phenotypes characteristic to certain habitats, theory suggests that gene flow should act to homogenize such differences. The intertidal habitat has one of the most striking and severe environmental/ecological gradients on the planet. Organisms living in this habitat, present distinct advantages for study the opposing effects of local adaptation and gene flow. The strong environmental gradient along the intertidal can produce divergent selection pressures, while the closeness of populations maintains the chance for gene flow and hybridization.

F. guiryi, is named in honor of Michael Guiry in recognition to his great contribution to Phycology by creating AlgaeBase.

See full article at:
http://www.plosone.org/article/info%3Adoi%2F10.1371%2Fjournal.pone.0019402

See *Fucus guiryi* in ALGAEBASE:
http://www.algaebase.org/search/species/detail/?species_id=139457&-session=abv4:55F02B2D1676b11376vyPwE80A9A