



Vertical migration, nitrate uptake and denitrification: survival mechanisms of foraminifers (*Globobulimina turgida*) under low oxygen conditions

Submitted by Emmanuel Lemoine on Tue, 09/16/2014 - 11:48

Titre	Vertical migration, nitrate uptake and denitrification: survival mechanisms of foraminifers (<i>Globobulimina turgida</i>) under low oxygen conditions
Type de publication	Article de revue
Auteur	Koho, Karoliina A. [1], Piña-Ochoa, Elisa [2], Geslin, Emmanuelle [3], Risgaard-Petersen, Nils [4]
Editeur	Wiley
Type	Article scientifique dans une revue à comité de lecture
Année	2011
Langue	Anglais
Date	2011/02/01
Numéro	2
Pagination	273 - 283
Volume	75
Titre de la revue	FEMS Microbiology Ecology
ISSN	1574-6941
Mots-clés	benthic foraminifera [5], denitrification [6], migration [7], nitrate uptake [8], pseudopodia [9]
Résumé en anglais	<p>15NO₃⁻ isotope labelling experiments were performed to investigate foraminiferal nitrate uptake strategies and the role of pseudopodial networks in nitrate uptake. <i>Globobulimina turgida</i> were placed below the nitrate penetration depth in homogenized sediment cores incubated in artificial seawater containing 15NO₃⁻. A nylon net prevented the vertical migration of foraminifera to strata containing nitrate and oxygen, but allowed potential access to such strata by extension of pseudopods. No 15NO₃⁻ was found in <i>G. turgida</i> in these cores, suggesting that foraminifera cannot extend their pseudopods for nitrate uptake through several millimetres of sediment, but must physically migrate upwards closer to nitrate-containing strata. However, foraminiferal migration patterns in control cores with no nylon net were erratic, suggesting that individuals move in random orientations until they find favourable conditions (i.e. free nitrate or oxygen). A second experiment showed that foraminifera actively collect nitrate both in the presence and in the absence of oxygen, although uptake was initiated faster if oxygen was absent from the environment. However, no systematic influence of the size of the intracellular nitrate pool on nitrate uptake was observed, as specimens containing a large range of intracellular nitrate (636-19 992 pmol per cell) were measured to take up 15NO₃⁻ at comparable rates.</p>
URL de la notice	http://okina.univ-angers.fr/publications/ua3859 [10]
DOI	10.1111/j.1574-6941.2010.01010.x [11]

Liens

- [1] [http://okina.univ-angers.fr/publications?f\[author\]=6426](http://okina.univ-angers.fr/publications?f[author]=6426)
- [2] [http://okina.univ-angers.fr/publications?f\[author\]=6427](http://okina.univ-angers.fr/publications?f[author]=6427)
- [3] <http://okina.univ-angers.fr/emmanuelle.geslin/publications>
- [4] [http://okina.univ-angers.fr/publications?f\[author\]=6428](http://okina.univ-angers.fr/publications?f[author]=6428)
- [5] [http://okina.univ-angers.fr/publications?f\[keyword\]=8078](http://okina.univ-angers.fr/publications?f[keyword]=8078)
- [6] [http://okina.univ-angers.fr/publications?f\[keyword\]=8151](http://okina.univ-angers.fr/publications?f[keyword]=8151)
- [7] [http://okina.univ-angers.fr/publications?f\[keyword\]=7405](http://okina.univ-angers.fr/publications?f[keyword]=7405)
- [8] [http://okina.univ-angers.fr/publications?f\[keyword\]=8152](http://okina.univ-angers.fr/publications?f[keyword]=8152)
- [9] [http://okina.univ-angers.fr/publications?f\[keyword\]=8153](http://okina.univ-angers.fr/publications?f[keyword]=8153)
- [10] <http://okina.univ-angers.fr/publications/ua3859>
- [11] <http://dx.doi.org/10.1111/j.1574-6941.2010.01010.x>

Publié sur *Okina* (<http://okina.univ-angers.fr>)