

continued from inside frontcover

Copying. This journal is registered with the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, USA. Organizations in the USA who are also registered with CCC may therefore copy material (beyond the limits permitted by sections 107 and 108 of US copyright law) subject to payment to CCC of the per copy fee of \$16.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0954-1020/2019 \$16.00. ISI Tear Sheet Service, 3501 Market Street, Philadelphia, PA 19104, USA, is authorized to supply single copies of separate articles for private use only.

Organizations authorized by the Copyright Licensing Agency may also copy material subject to the usual conditions.

For all other use, permission should be sought from Cambridge University Press.

This journal issue has been printed on FSCTM-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see www.fsc.org for information.

Printed in the United Kingdom by Bell & Bain.

ANTARCTIC science

Volume 31 Number 1 2019

CONTENTS

Editorial	1	Identification, characterization and expression analysis of the chalcone synthase family in the Antarctic moss <i>Pohlia nutans</i> XINGHAO YAO, TAILIN WANG, HUIJUAN WANG, HONGWEI LIU, SHENGHAO LIU, QINGANG ZHAO, KAOSHAN CHEN & PENGYING ZHANG	23
BIOLOGICAL SCIENCES			
Biodiversity and enzymes bioprospection of Antarctic filamentous fungi M.M. MARTORELL, L.A.M. RUBERTO, P.M. FERNÁNDEZ, L.I.C. DE FIGUEROA & W.P. MAC CORMACK	3	EARTH SCIENCES Short Note: Were ibises (Aves, Threskiornithidae) present in Antarctica? FEDERICO LISANDRO AGNOLIN, SERGIO BOGAN & SEBASTIÁN ROZADILLA	35
Bacteria defend carrion from scavengers PAUL K. DAYTON, JOHN S. OLIVER, SIMON F. THRUSH & KAMILLE HAMMERSTROM	13	PHYSICAL SCIENCES Changes in the Atlantic Sector of the Southern Ocean estimated from the CESM Last Millennium Ensemble ILANA WAINER & PETER R. GENT	37
Parasites in Antarctic krill guts inferred from DNA sequences ALISON C. CLEARY, MARIA C. CASAS, EDWARD G. DURBIN & JAIME GÓMEZ-GUTIÉRREZ	16	Book Reviews	53

Antarctic Science is abstracted in *Current Contents*, *SciSearch*, *Research Alert*, *Geo Abstracts*, *Current Awareness in Biological Sciences*, *Mineralogical Abstracts*, *Meteorological & Geo-astrophysical Abstracts*, *Current Antarctic Literature*, *GeoArchive*, *GeoRef*, *Biosis*, *Oceanographic Literature*, *Environmental Periodicals Bibliography* and *Polar & Glaciological Abstracts*

Cambridge Core

For further information about this journal please go to the journal website at:

cambridge.org/ans



MIX
Paper from
responsible sources
FSC® C007785

CAMBRIDGE
UNIVERSITY PRESS