

Cambridge University Press

978-0-521-10576-7 - The Effects of Low Temperatures on Biological Systems

Edited by B. W. W. Grout and G. J. Morris

Table of Contents

[More information](#)

Contents

Contributors	v
Preface	vii
Section I Fundamental principles	1
1 Physico-chemical principles in low temperature biology <i>M.J. Taylor</i>	3
2 Cells at low temperatures <i>G.J. Morris and A. Clarke</i>	72
3 Direct chilling injury <i>G.J. Morris</i>	120
4 Freezing and cellular organization <i>B.W.W. Grout and G.J. Morris</i>	147
Section II Techniques	175
5 Low temperature and biological electron microscopy <i>H. le B. Skaer</i>	177
6 Temperature-controlled cryogenic light microscopy – an introduction to cryomicroscopy <i>J.J. McGrath</i>	234

Cambridge University Press

978-0-521-10576-7 - The Effects of Low Temperatures on Biological Systems

Edited by B. W. W. Grout and G. J. Morris

[Table of Contents](#)[More information](#)x *Contents*

Section III	Environmental low temperature biology	269
7	Chilling injury in plants <i>J.M. Wilson</i>	271
8	Higher plants at freezing temperatures <i>B.W.W. Grout</i>	293
9	The adaptation of aquatic animals to low temperatures <i>A. Clarke</i>	315
10	Mammalian hibernation <i>L.C.H. Wang</i>	349
Section IV	Applications	387
11	The low temperature preservation of plant cell, tissue and organ cultures and seed for genetic conservation and improved agricultural practice <i>L.A. Withers</i>	389
12	The preservation of organisms responsible for parasitic diseases <i>E. James</i>	410
13	Low temperature preservation in medicine and veterinary science <i>B.J. Fuller</i>	432
14	Cryotherapy <i>C.J. Green</i>	451
15	The freezing of food tissues <i>D.S. Reid</i>	478
	Index	489