

Williams, A., Antonovics, J. and Rolff, J. 2011. Dioecy, hermaphrodites and pathogen load in plants. – *Oikos* 120: 657–660.

Appendix 1

Data collection

An extensive literature search was carried out. Documented below is the list of search terms used.

1. Journal searches

Search terms in Google Scholar and Web of Science:

Sex specific mortality dioecious
Sex immunity
Gender specific mortality plants
Dioecy family phylogeny
Gender differences dioecious
Gender ratios dioecious
Female dioecious immunity
Male mortality dioecy
Male mortality plants
Angiosperm phylogeny
Gender effect dioecious
Dioecious mortality
Sex mortality plants
Gender mortality plants
Differential immunity dioecious
Dioecious immune difference

Specific searches using a common root fungus Pythium:

Pythium dioecious
Pythium sex ratio
Pythium sex ratio dioecious
Pythium differential gender mortality
Pythium gender mortality
Pythium sex mortality
Pythium dioecious mortality
Pythium male female
Pythium gender effect dioecious
Pythium gender effect

Similar searches on specific dioecious genera:

Ilex pythium
Ilex pythium gender differences – paper on effect on sex organ development
Ilex pythium sex differences
Ilex pythium gender
Ilex pythium sex

Same search terms on *Diospyros*, *Myrica*, *Populus*, *Juniperus*, *Acer* and same genera using their common names.

2. Searches in USDA database

Used USDA fungal database to search for any pythium information within the following genera: *Ilex*, *Helwingia*, *Muehlenbeckia*, *Nyssa*, *Diospyros*, *Myrica*, *Fraxinus*, *Smilax*, *Salix*, *Populus*, *Torreya*, *Cephalotaxus*, *Juniperus*, *Shepherdia*, *Humulus*, *Acer*, *Ribes*, *Zanthoxylum*, *Phellodendron*. No information on differential immunity, mortality etc.

3. Searches in other sources

Pantidou, M. L. 1973, Fungus–host index for Greece
Ginns, J. H. 1986, Compendium of plant disease and decay fungi on Canada
Pennycook, S. R. 1989 Plant diseases recorded in New Zealand
Gadgil, P. D. 2005 Fungi on trees and shrubs in New Zealand
Alfieri, Jr. S. A. et al. 1984 Index of plant disease in Florida
Gill, D. L. 1970 Pathogenic *Pythium* from irrigation ponds
Grand, L. F. (ed.) 1985 North Carolina Plant disease index
French 1989 California plant disease host index
Kobayashi, T. 2007 Index of fungi inhabiting woody plants in Japan
Raabe, R. D. et al. Checklist of plant disease in Hawaii
Hilton, S. (ed.) 2000 Canadian plant disease survey
Spaulding, P. 1961 Foreign diseases of forest trees of the world
Mead, F. W. 1990 Bureau of plant pathology

4. Contact with institutions

Rothamstead Research Centre – nothing that they have done has recorded gender differences in any agricultural dioecious plants

5. Generalised mixed model results

Linear mixed model fit by REML

Formula: $\text{Log.path} \sim \text{Log.Cit} + \log(\text{Height}) + \text{Reproduction} + (1 | \text{Order})$

Data: dat

AIC BIC logLik deviance REMLdev
326.8 348.6 –157.4 294.8 314.8

Random effects:

Groups	Name	Variance	Std.Dev.
Order	(Intercept)	0.015319	0.12377
Residual		0.161201	0.40150

Number of obs: 280, groups: Order, 20

Fixed effects:

	Estimate	Std. Error	t value
(Intercept)	0.31388	0.06496	4.832
Log.Cit	0.49038	0.03129	15.673
log(Height)	0.09525	0.02005	4.751

ReproductionHermaphrodite 0.12536 0.04873 2.572

Correlation of Fixed Effects:

(Intr) Log.Ct lg(Hg)

Log.Cit -0.595

log(Height) -0.293 -0.142

RprdctnHrmp -0.485 0.162 0.041