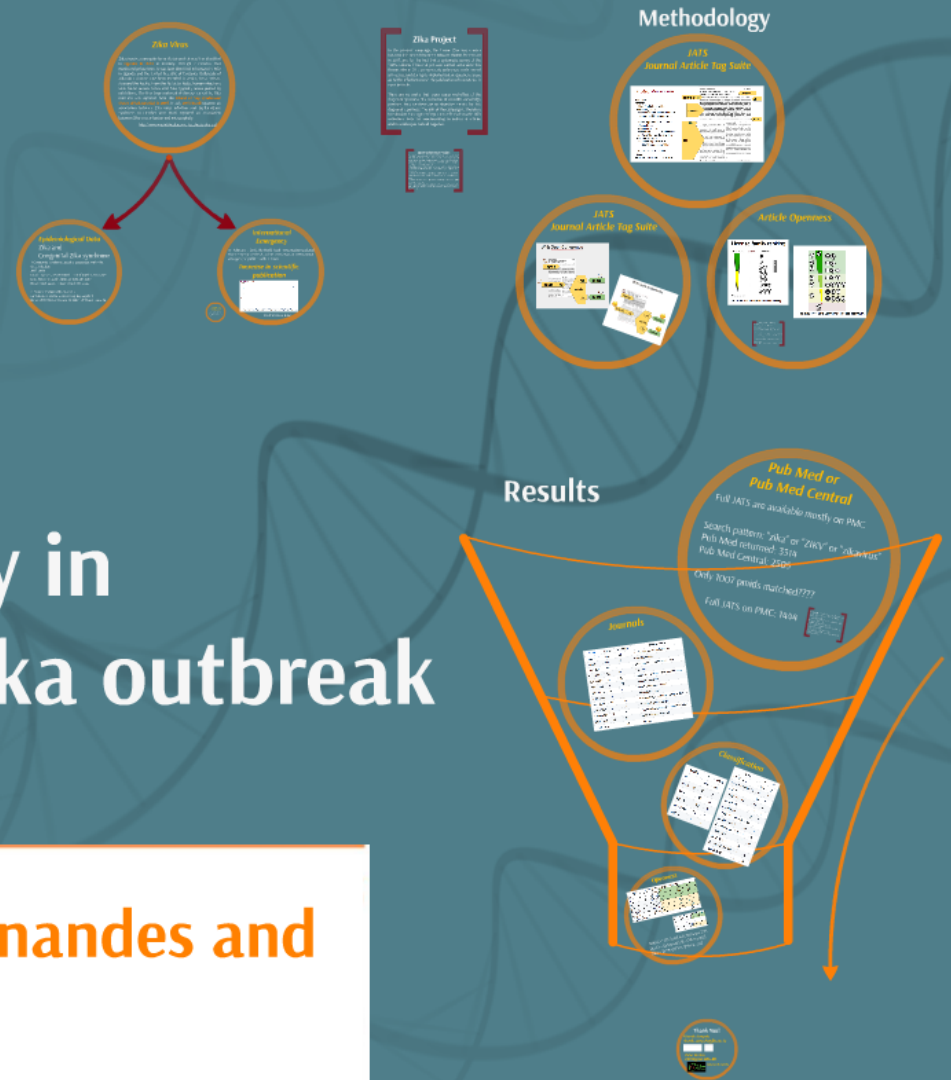


Open Access Coherence Study in publications related to the Zika outbreak



Peter Krauss, Jorge H. C. Fernandes and Ricardo Barros Sampaio



Peter Krauss, Jorge H. C. Fernandes and Ricardo Barros Sampaio

Zika Virus

Zika virus is a mosquito-borne flavivirus that was first identified in **Uganda in 1947** in monkeys through a network that monitored yellow fever. It was later identified in humans in 1952 in Uganda and the United Republic of Tanzania. Outbreaks of Zika virus disease have been recorded in Africa, the Americas, Asia and the Pacific. From the 1960s to 1980s, human infections were found across Africa and Asia, typically accompanied by mild illness. The first large outbreak of disease caused by Zika infection was reported from the **Island of Yap (Federated States of Micronesia) in 2007**. In July **2015 Brazil** reported an association between Zika virus infection and Guillain-Barré syndrome. In October 2015 Brazil reported an association between Zika virus infection and microcephaly.

<http://www.who.int/mediacentre/factsheets/zika/en/>

Epidemiological Data Zika and Congenital Zika syndrome

1. Congenital syndrome possibly associated with Zika virus infection - 2015/2016
Brazil: 10,232 cases reported . :: Confirmed: 2,205 cases
Data from the last bulletin up to SE 26/2017
Brazil: 4,221 cases . :: Confirmed: 391 cases
2. Acute infection with Zika virus
Cumulative data for 2016 and up 06/26/2017
Brazil: 205,578 in 2016 and 13,353 in 2017 until June 26.

International Emergency

On February 1, 2016, the World Health Organization declared that the spread of the Zika virus (ZIKV) was an international emergency of public health concern.

Increase in scientific publication



SCOPUS Data Base



Zika Virus

Zika virus is a mosquito-borne flavivirus that was first identified in **Uganda in 1947** in monkeys through a network that monitored yellow fever. It was later identified in humans in 1952 in Uganda and the United Republic of Tanzania. Outbreaks of Zika virus disease have been recorded in Africa, the Americas, Asia and the Pacific. From the 1960s to 1980s, human infections were found across Africa and Asia, typically accompanied by mild illness. The first large outbreak of disease caused by Zika infection was reported from the **Island of Yap (Federated States of Micronesia) in 2007**. In July **2015 Brazil** reported an association between Zika virus infection and Guillain-Barré syndrome. In October 2015 Brazil reported an association between Zika virus infection and microcephaly.

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Epidemiological Data

Zika and

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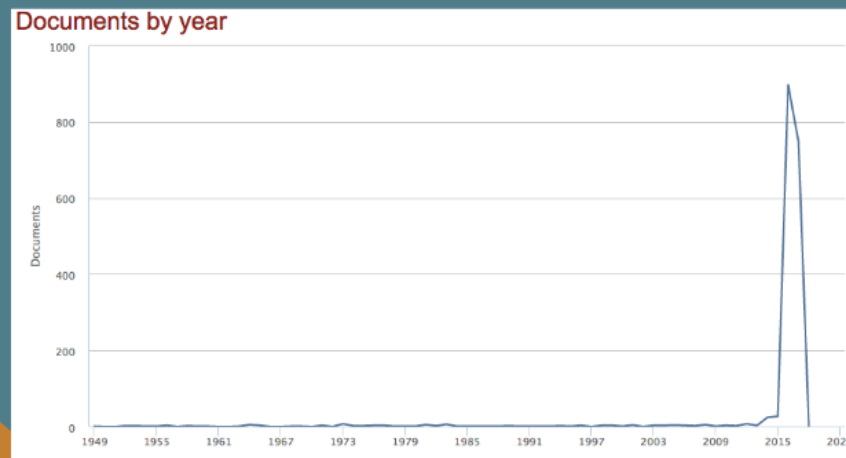
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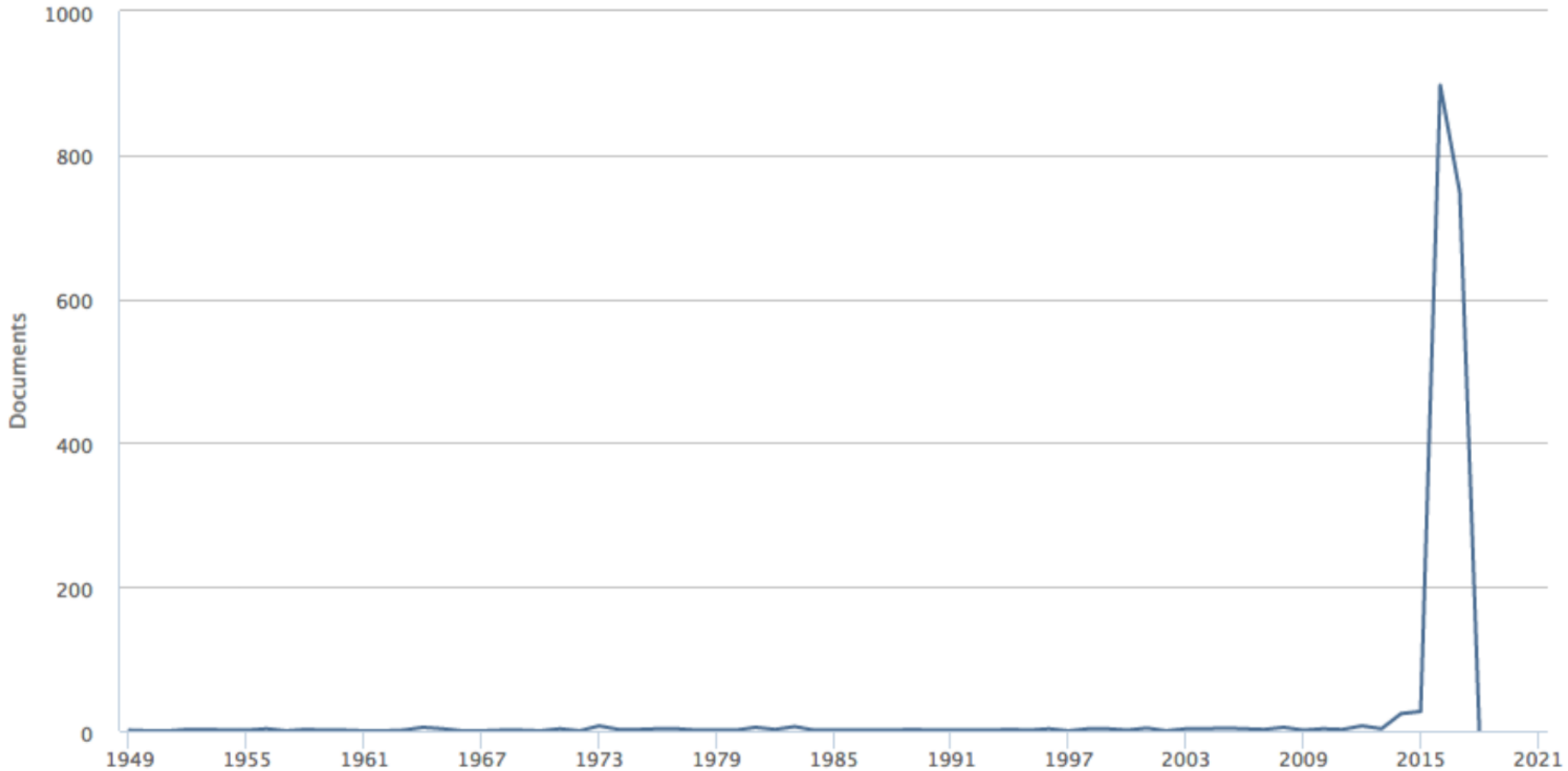
SCOPUS Data Base

*Some journals offered
fast tracking for scientific
publications on zika*

Fast Track for publications -
The idea was to make research
findings available to the public.
Really!?!?

publication

Documents by year



SCOPUS Data Base

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Fast Track for publications -
The idea was to make research
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Really!?!?

Zika Project

In the present campaign, the theme Zika was chosen because it is one of the most relevant themes for Fiocruz in 2017, and for the fact that a systematic survey of the "JATS collection" has not yet been carried out around this theme. Also in 2017 an open data policy was implemented at Fiocruz, and during its implementation, questions arose as to the effectiveness of the publication of researches in open journals.

There are no works that prove cause and effect of the degree of openness of a collection of scientific knowledge, precisely because there are no objective metrics for this degree of openness. The aim of the campaign is therefore to calculate the degree of openness of this thematic JATS collection, both for benchmarking in individual articles and in articles journals all together.

Open Coherence Project

The OpenCoherence project (Krauss 2015 and 2016) has been built as a mini-framework, software and data, for the audit of the repositories of scientific and legislative knowledge, and for the recording of evidence (documents taken as samples) that reinforce the hypothesis Of work.

Within this context, the project aims to:

- Formalize opening metrics for the characterization of existing licenses
- To instrumentalize the characterization of the degree of opening of a document
- Characterize the internal and external dependencies of a document
- Formalize and instrumentalize the average opening set of document sets
- Characterize the degree of openness of large repositories by complete scanning or sampling

For the present proposal the scope of the discussion had as object the repositories and articles of scientific knowledge only, and not in the legislative one.

Methodology

JATS Journal Article Tag Suite

The JATS article anatomy

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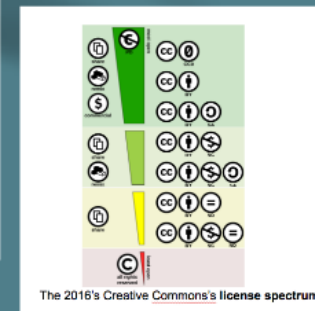
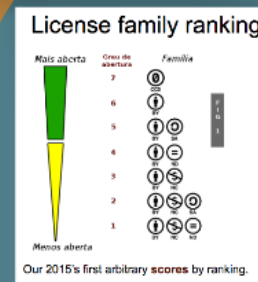
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JATS Journal Article Tag Suite

With OpenCoherence

With less coherence

Article Openness



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JATS Journal Article Tag Suite

The JATS article anatomy

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sec

article-title

aff

kwd

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PLoS ONE

A Role for Parasites in Stabilising the Fig-Pollinator Mutualism

W. Davis^{1,2,3}, Simon T. Sagar^{1,2}, Jo Ribley¹, Ruth Chan¹, Ross M. Cooper¹, Douglas W. Yu², James M. Cook^{1,2,3*}

Abstract
Mutualisms are interspecific interactions in which both players benefit. Explaining their maintenance is problematic, because cheaters should outcompete cooperative conspecifics, leading to mutualism instability. Monoecious figs (*Ficus*) are pollinated by host-specific wasps (Agaonidae), whose larvae gall ovules in their "fruit" (syconium). Female offspring wasps oviposit directly into these ovules from inside the receptive syconium. Across *Ficus* species, there is a highly documented segregation of pollinator galls in inner ovules and seeds in outer ovules. This pattern suggests that galls, or are prevented from ovipositing into, outer ovules, and this results in mutualism stability. However, the mechanism preventing wasps from exploiting outer ovules remains unknown. We report that in *Ficus rubiginosa*, the outer ovules are vulnerable to attack by parasitic wasps that oviposit from outside the syconium. Parasitism risk decreases towards the centre of the syconium, where inner ovules provide empty-free space for later offspring. We suggest that the resulting gradient in offspring viability is likely to contribute to selection on pollinators to avoid outer ovules, and by forcing wasps to focus on a subset of ovules, reduces their galling rates. This previously unidentified mechanism may therefore contribute to mutualism persistence independent of additional factors that involve plant defences against pollinator oviposition, or physiological constraints on pollinators that prevent oviposition in all available ovules.

Introduction
In a long-term debate by selection at the level of the individual gene [1], explaining the existence of cooperation, such as mutualism, is a major scientific challenge. Mutualisms are interspecific ecological interactions characterised by reciprocal benefits to both partners [2] that usually involve costly investments by each. What factors that prevent one partner from exploiting noncooperative conspecifics ensure the stability of mutualism [3,7]. In some mutualisms, the partner more readily partners, manipulates the other for long-term benefits to cooperative individuals and conspecifics [4–7]. However, a general consensus on mutualism maintenance has only recently been formulated, and this consensus that a high benefits-to-cost ratio of cooperating partners factor [8,9].

Ficus and their host-specific agamid pollinators are a classic example of an obligate mutualism [10,11]. The pollinators pollinate the trees, and the trees provide resources to offspring. In monoecious *Ficus*, female wasps pollinate through a specialised entrance into receptive ovules (syconium, "fig"), which are enclosed inflorescences. The wasps then pollinate the tree while depositing their eggs into receptive ovules. Then, each egg laid into the tree ovule mark has upon emergence, the female wasp offspring disperse that tree's pollen. Trees need to produce both wasps and seeds for the mutualism to persist, but recent selection should favour wasps that exploit the maximum number of fig ovules in the short term, resulting in a conflict of interest between wasp and tree. However, the mutualism has persisted for at least 60 million years and has radiated into more than 750 species pairs [12]. The mechanisms preventing wasps from overexploiting figs remain unknown, despite increasing study over time decades.

Within receptive syconia, the lengths of floral styles are highly variable [13,14], and ovipositing pollinators (monoecious) linearly focus with shorter styles for their offspring [15–19]. Style and pedicel lengths of flowers are negatively correlated. Short-styled ovules develop into seeds or galls (when a wasp is present) near the syconium base cavity, while long-styled ovules develop into seeds near the ovule cell [19,20] (Figure 1). These patterns have been shown to reflect the oviposition preferences of females, and are unlikely to be the result of greater elongation of pedicels containing eggs during removal of ovules, because in receptive syconia, pollinator eggs are mainly present in short-styled inner ovules [16]. These widespread observations have been used to infer one necessarily mutually exclusive mechanism that have been proposed to stabilise the fig-pollinator mutualism: (1) Ethical-like seeds—ovules must be defended biochemically or physically against oviposition or larval development [21]. However, no mechanism has yet been identified. (2) Short ovipositor-pollinator ovipositors may be too short to fully penetrate the long styles of

Academic Editor: Aranya A. Agrawal, Cornell University, UNITED STATES OF AMERICA
Received: September 14, 2015; Accepted: January 23, 2016; Published: March 15, 2016
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* james.cook@utoronto.ca
† ross.cooper@utoronto.ca

Introduction
Mutualisms are interspecific interactions in which both players benefit. Explaining their maintenance is problematic, because cheaters should outcompete cooperative conspecifics, leading to mutualism instability. Monoecious figs (*Ficus*) are pollinated by host-specific wasps (Agaonidae), whose larvae gall ovules in their "fruit" (syconium). Female offspring wasps oviposit directly into these ovules from inside the receptive syconium. Across *Ficus* species, there is a highly documented segregation of pollinator galls in inner ovules and seeds in outer ovules. This pattern suggests that galls, or are prevented from ovipositing into, outer ovules, and this results in mutualism stability. However, the mechanism preventing wasps from exploiting outer ovules remains unknown. We report that in *Ficus rubiginosa*, the outer ovules are vulnerable to attack by parasitic wasps that oviposit from outside the syconium. Parasitism risk decreases towards the centre of the syconium, where inner ovules provide empty-free space for later offspring. We suggest that the resulting gradient in offspring viability is likely to contribute to selection on pollinators to avoid outer ovules, and by forcing wasps to focus on a subset of ovules, reduces their galling rates. This previously unidentified mechanism may therefore contribute to mutualism persistence independent of additional factors that involve plant defences against pollinator oviposition, or physiological constraints on pollinators that prevent oviposition in all available ovules.

Citation: Davis W, Sagar ST, Ribley J, Chan R, Cooper RM, Yu DW, et al. (2016) A Role for Parasites in Stabilising the Fig-Pollinator Mutualism. *PLoS ONE* 11(3): e0154127. doi:10.1371/journal.pone.0154127

PLoS ONE | www.plosone.org 1/10 March 2016 | Volume 11 | Issue 3 | e0154127

The JATS article anatomy

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PLOS BIOLOGY

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abstract

title

sec

A Role for Parasites in Stabilising the Fig-Pollinator Mutualism

W. Dunn^{1,2,3}, Simon T. Segar^{1,2}, Jo Ridley³, Ruth Chan¹, Ross H. Crozier⁴, Douglas W. Yu⁵, James M. Cook^{1,2,3*}

1 Division of Biology, Imperial College London, Ascot, United Kingdom, 2 School of Biological Sciences, University of Reading, Reading, United Kingdom, 3 School of Biological Sciences, University of East Anglia, Norwich, United Kingdom, 4 School of Marine and Tropical Biology, James Cook University, Townsville, Queensland, Australia, 5 Natural Environment Research Council (NERC) Centre for Population Biology, Imperial College London, Ascot, United Kingdom

Mutualisms are interspecific interactions in which both players benefit. Explaining their maintenance is problematic, because cheaters should outcompete cooperative conspecifics, leading to mutualism instability. Monoecious figs (*Ficus*) are pollinated by host-specific wasps (Agaonidae), whose larvae gall ovules in their “fruits” (syconia). Female pollinating wasps oviposit directly into *Ficus* ovules from inside the receptive syconium. Across *Ficus* species, there is a consistently documented segregation of pollinator galls in inner ovules and seeds in outer ovules. This pattern suggests that inner ovules avoid, or are prevented from ovipositing into, outer ovules, and this results in mutualism stability. However, the mechanisms preventing wasps from exploiting outer ovules remain unknown. We report that in *Ficus rubiginosa*, inner ovules are vulnerable to attack by parasitic wasps that oviposit from outside the syconium. Parasitism risk decreases towards the centre of the syconium, where inner ovules provide enemy-free space for pollinator offspring. We suggest that the resulting gradient in offspring viability is likely to contribute to selection on pollinators to avoid outer ovules, and by forcing wasps to focus on a subset of ovules, reduces their galling rates. This previously unidentified mechanism may therefore contribute to mutualism persistence independent of additional factors that invoke plant defences against pollinator oviposition, or physiological constraints on pollinators that prevent oviposition in all available ovules.

Citation: Dunn W, Segar ST, Ridley J, Chan R, Crozier RH, et al. (2008) A role for parasites in stabilising the fig-pollinator mutualism. *PLoS Biol* 6(2): e168. doi:10.1371/journal.pbio.0060168

Introduction

In a biosphere driven by selection at the level of the individual gene [1], explaining the existence of cooperation, such as mutualism, is a major scientific challenge. Mutualisms are interspecific ecological interactions characterised by reciprocal benefits to both partners [2] that usually involve costly investments by each. What factors thus prevent one partner from imposing unsustainable costs onto the other to enable mutualism stability [3–7]? In some mutualisms, the larger, more sessile partner, manipulates the other by diverting benefits to cooperative individuals and costs to non-cooperating individuals [4–7]. However, a general consensus on mutualism stability has only recently been formulated, and this consensus suggests that a high benefit-to-cost ratio of cooperating individuals is a key determinant factor [8,9].

Ficus and their host-specific agaonid pollinator represent a classic example of an obligate mutualism [10,11]. Pollinating wasps pollinate the trees, and the trees provide resources for wasp offspring. In monoecious *Ficus*, female wasps push their eggs through a specialised entrance into receptive syconia (colloquially, “figs”), which are enclosed inflorescences. The wasps then pollinate the tree while depositing their eggs individually into ovules. Thus, each egg laid costs the tree one seed, but upon emergence, the female wasp offspring disperse that tree’s pollen. Trees need to produce both wasps and seeds for the mutualism to persist, but natural selection should favour wasps that exploit the maximum number of fig ovules in the short term, resulting in a conflict of interest between wasp and tree. However, the mutualism has persisted for at least 60 million years and has radiated into more than 750 species pairs [12]. The mechanisms preventing wasps from overexploiting figs remains unknown, despite intensive study over four decades.

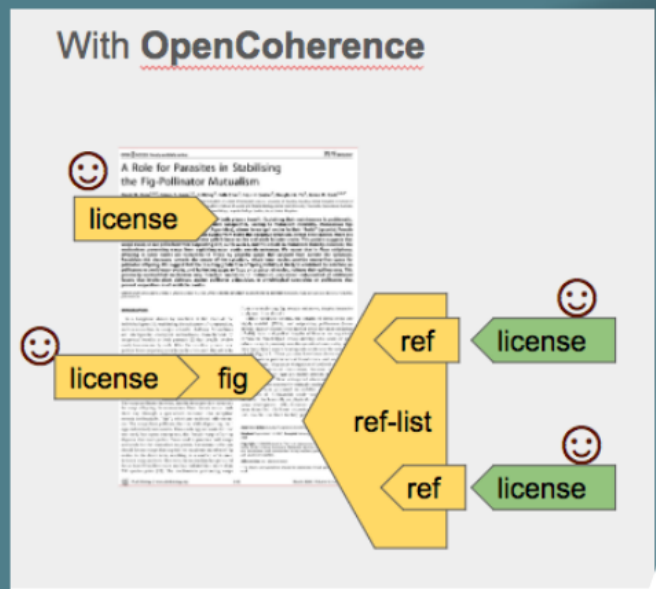
Within receptive syconia, the lengths of floral styles are highly variable [13,14], and ovipositing pollinators (foundresses) favour flowers with shorter styles for their offspring [15–18]. Style and pedicel lengths of flowers are negatively correlated. Short-styled ovules develop into seeds or galls (when a wasp is present) near the syconium inner cavity, while most long-styled ovules develop into seeds near the outer wall [19,20] (Figure 1). These patterns have been shown to reflect the oviposition preferences of foundresses, and are unlikely to be the result of greater elongation of pedicels containing eggs during syconium maturation, because in receptive syconia, pollinators’ eggs are mainly present in short-styled inner ovules [16]. These widespread observations have been tied to four, not necessarily mutually exclusive, mechanisms that have been proposed to stabilise the fig-pollinator mutualism: (1) Unobtainable seeds—outer ovules may be defended biochemically or physically against oviposition or larval development [21]. However, no mechanism has yet been identified. (2) Short ovipositors—pollinators’ ovipositors may be too short to fully penetrate the long styles of

Academic Editor: Anurag A. Agrawal, Cornell University, United States of America
Received September 14, 2007; Accepted January 22, 2008; Published March 11, 2008
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Abbreviations: ca., standard error
* To whom correspondence should be addressed. E-mail: james.cook@reading.ac.uk

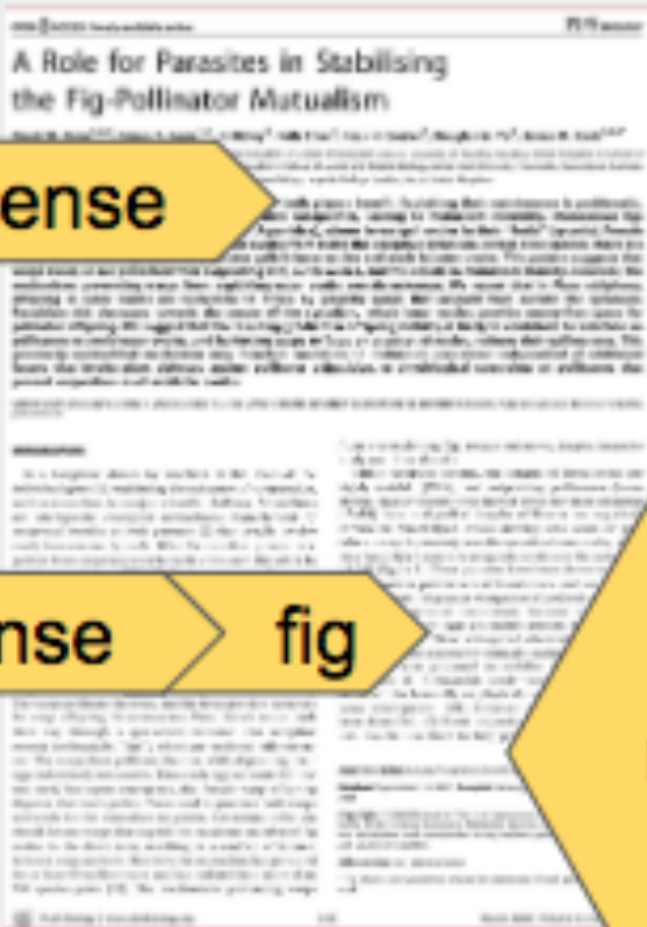
PLOS Biology | www.plosbiology.org 0490 March 2008 | Volume 6 | Issue 3 | e168

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doi:10.1093/bioinformatics/btt111

A Role for Parasites in Stabilising the Fig-Pollinator Mutualism

Journal of Ecology 2009, 97, 1000-1008

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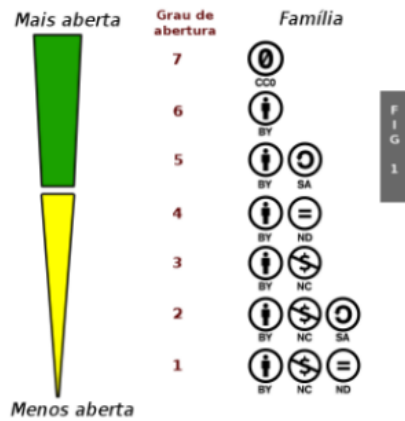


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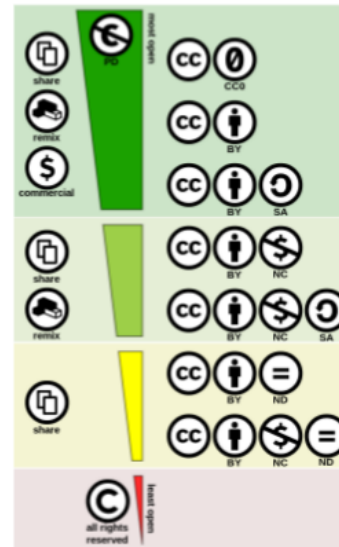
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Article Openness

License family ranking



Our 2015's first arbitrary **scores** by ranking.



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Results

Pub Med or Pub Med Central

Full JATS are available mostly on PMC

Search pattern: "zika" or "ZIKV" or "zika virus"
 Pub Med returned: 3314
 Pub Med Central: 2505

Only 1007 pmids matched????

Full JATS on PMC: 1444



Journals

ISSN	Articles	Full JATS	Name & Location
1538-7257	109	382	Emerging Infectious Diseases
1548-7717	121	115	Emerging Infectious Diseases - ESI
1548-7717	119	0	Emerging Infectious Diseases - ESI
1548-7717	101	302	Emerging Infectious Diseases - ESI
1548-7717	91	10	Emerging Infectious Diseases - ESI
1548-7717	70	70	Emerging Infectious Diseases - ESI
1548-7717	67	0	Emerging Infectious Diseases - ESI
1548-7717	67	0	Emerging Infectious Diseases - ESI
1548-7717	47	36	Emerging Infectious Diseases - ESI
1548-7717	43	21	Emerging Infectious Diseases - ESI
1548-7717	26	11	Emerging Infectious Diseases - ESI
1548-7717	24	34	Emerging Infectious Diseases - ESI
1548-7717	21	20	Emerging Infectious Diseases - ESI

Classification

Family	n	date	name	n	date
by-nc-nd	768	92	cc-by-nc	773	77
cc0	66	7	cc-by-nc-nd-4.0	81	7
by-nc	47	5	cc-by-nc-nd-4.0	84	5
by-nc-sa	40	4	cc-by-nc-nd-4.0	26	4
cc0-sa	13	1	cc-by-nc-nd-4.0	23	3
	1	0	cc-by-nc-nd-4.0	11	1
			cc-by-nc-nd-4.0	0	1
			cc-by-nc-nd-4.0	4	0
			cc-by-nc-nd-4.0	4	0
			cc-by-nc-nd-4.0	3	0
			cc-by-nc-nd-4.0	2	0
			cc-by-nc-nd-4.0	1	0

Openness

Openness	n	date
Open	1444	100%
Not Open	0	0%
Unknown	0	0%

SciELO = (14% of 6.0; 86% of 2.0)
 DOAJ = (55% of 5.9; 41% of 2.0)
 Zika = (91% of 5.8; 9% of 2.0)

Pub Med or Pub Med Central

Full JATS are available mostly on PMC

Search pattern: "zika" or "ZIKV" or "zika virus"

Pub Med returned: 3314

Pub Med Central: 2505

Only 1007 pmids matched????

Full JATS on PMC: 1444

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(84.5% de n_artis)
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has_body and has_perms
n_hasbefs=1728 (71.9% de n_artis)
n_useful2=1667 (69.3% de n_artis), contagem de
hasbefs and useful1
n_isvalid=1940 (80.7% de n_artis)
n_useful3=1444 (60.0% de n_artis), contagem de
isvalid and useful2
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ournals

Nome da revista
...nical diseases

n_arts=2405 (96% do universo inicial pesquisado)

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(84,5% de n_arts)

n_useful1=2032 (84,5% de n_arts), contagem de
has_body and has_permiss

n_hasRefs=1778 (73,9% de n_arts)

n_useful2=1667 (69,3% de n_arts), contagem de
hasRefs and useful1

n_isValid=1940 (80,7% de n_arts)

n_useful3=1444 (60,0% de n_arts), contagem de
isValid and useful2

Journals

ISSN-L	n_arts	n_usefu13	Nome da revista
1935-2727	209	183	PLoS neglected tropical diseases
2045-2322	127	125	Scientific reports
1080-6040	115	0	Emerging infectious diseases - EID
1932-6203	106	103	PloS one
0042-9686	91	10	Bulletin of the World Health Organization
1756-3305	70	70	Parasites & vectors
0027-8424	47	0	PNAS, Biological Sciences
0022-538X	46	6	Journal of virology
1553-7366	41	36	PLOS pathogens / Public Library of Science
1664-302X	41	37	Frontiers in microbiology
0002-9637	36	11	The American journal of tropical medicine...
1471-2334	34	34	BMC infectious diseases
1999-4915	31	30	Viruses

ISSN-L	n_arts	n_useful3	Nome da revista
1935-2727	209	183	PLoS neglected tropical diseases
2045-2322	127	125	Scientific reports
1080-6040	115	0	Emerging infectious diseases - EID
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1756-3305	70	70	Parasites & vectors
0027-8424	47	0	PNAS, Biological Sciences
0022-538X	46	6	Journal of virology
1553-7366	41	36	PLOS pathogens / Public Library of Science
1664-302X	41	37	Frontiers in microbiology
0002-9637	36	11	The American journal of tropical medicine...
1471-2334	34	34	BMC infectious diseases
1999-4915	31	30	Viruses

Classification

family	n	perc
by	766	82
by-nc-nd	65	7
cc0	47	5
by-nc	40	4
by-nc-sa	13	1
cc0-x	1	0

name	n	perc
CC-BY-4.0	713	77
CC-BY-NC-ND-4.0	61	7
CC0-1.0	44	5
CC-BY-NC-4.0	34	4
CC-BY-2.0	26	3
CC-BY-3.0	23	2
CC-BY-NC-SA-3.0	11	1
CC-BY-NC-3.0	6	1
CC-BY-NC-ND-3.0	4	0
CC-BY-2.5	4	0
CC-PDM-1.0	3	0
CC-BY-NC-SA-4.0	2	0
CC0-GOV-US	1	0

Openness

family	n_arts	perc	scope	family-score	
by	1151	86%	od	90	5,4
cc0	50	4%	od	100	0,3
by-x	12	1%	od	85	0,1
by-nc	78	6%	oa	40	0,2
by-nc-nd	35	3%	oa	14	0,03
by-nc-sa	16	1%	oa	15	0,01
tot 1342 artigos					6,0

family	n_arts	perc_tot	perc	scope	family-score	score
by	1151	86%	95%	od	90	6,0
cc0	50	4%	4%	od	100	0,3
by-x	12	1%	1%	od	85	0,1
	1213					
		91%				
by-nc	78	6%	60%	oa	40	6,0
by-nc-nd	35	3%	27%	oa	14	0,3
by-nc-sa	16	1%	12%	oa	15	0,1
	129					

ScieLO = [14% od 6,0; 86% oa 2,9]

DOAJ = [53% od 5,9; 47% oa 2,0]

Zika = [91% od 5,8; 9% oa 2,0]

family	n_arts	perc_tot	perc	scope	family-score	score
by	1151	86%	95%	od	90	6,0
cc0	50	4%	4%	od	100	0,3
by-x	12	1%	1%	od	85	0,1
	1213					
		91%				
by-nc	78	6%	60%	oa	40	6,0
by-nc-nd	35	3%	27%	oa	14	0,3
by-nc-sa	16	1%	12%	oa	15	0,1
	129					

160 060% 207

Thank You!

Ricardo Sampaio

ricardo.sampaio@fiocruz.br



Peter Krauss

PETER@OK.ORG.BR.



Caboverde.com.br