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30 years of research on insect galls in Brazil: a scientometric review

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Abstract. The first systematic studies on insect galls in Brazil date to the early 20th century, after which research on insect galls remained dormant in the country, with interest not reviving until the 1980s. The aim of this study was is to document historical trends in publications about insect galls in Brazil over the last 30 years. Papers about insect galls and galling species in Brazil published in peer-reviewed journals from 1988 to 2017 were compiled. A total of 1,378 papers were analyzed, of which 182 addressed insect galls in Brazil. The results showed that the number of publications on the subject has been increasing over the last 30 years, and especially in the last decade. The diversity of journals that published on the subject has also been increasing. The studies were concentrated on the following topics: ecology (94 papers), inventory (29) and taxonomy (27). Most of the insect gall inventories in Brazil took place in the Southeast Region (29 papers), followed by the Central-West and Northeast regions, with eight papers each. This study documents a trend toward increasing scientific production on insect galls in Brazil, but with significant geographical bias: the researchers involved are concentrated in the Southeast Brazilian region.

Key-Words. Ecological interaction; Galling insects; Plant-insect interaction; Scientometry.

INTRODUCTION

Galling insects are very diverse, with some estimates indicating that there could be as many as 132,000 species on the planet (Espírito-Santo & Fernandes, 2007), and between 5,540 (Grandez-Rios *et al.,* 2015) and 9,282 species (Araújo *et al.,* 2014) in Brazil. Although reports on insect galls in Brazil have been published since the 19th century, the first systematic studies involving them date to the early 20th century (Moreira, 2006). From 1905 to 1925, important natural historians, such as J.S. Tavares (Portugal), E.H. Rübsaamen (Germany), and E.P. Felt (United States of America – USA), described a large number of galling insect species from Brazil (Maia, 2005). After this period, the study of insect galls in Brazil remained dormant, with interest in the group not reviving until the 1980s. Since then, studies on galling insects have been carried out in different regions of Brazil using a variety of approaches and focusing on topics such as anatomy, biology, ecology and taxonomy (Moreira, 2006).

Brazil is the current leader in scientific production regarding insect galls, together with Mexico and USA (Grandez-Rios *et al.,* 2015). The aim of the present study was to identify historical trends in the research on insect galls in Brazil over the last 30 years. Publications from 1988 to 2017, available in different scientific journal databases, were compiled. The main features of the papers were described and historical trends assessed with regard to number of papers, journals publishing on the subject, quality of the publications, topics investigated and the most studied regions and states of Brazil. The evaluation of scientific production in natural sciences has been the topic of discussion in recent years (Brito *et al.,* 2009; Nabout *et al.,* 2012; Borges *et al.,* 2015; Nabout *et al.,* 2015; Vaz *et al.,* 2015; Santos *et al.,* 2017), and has become an important tool for identifying trends and biases in the scientific production of a given area of study (Drew *et al.,* 2016).

MATERIALS AND METHODS

Papers about insect galls and galling species in Brazil published in peer-reviewed journals from 1988 to 2017 were compiled from papers indexed in the platform "Portal de Periódicos Capes" (www.periodicos.capes.gov.br). This platform includes several scientific databases such as SCOPUS and Scielo, which makes a more comprehensive search on the topic possible. The period analyzed in this study (1988-2017) begins in the 1980s, when gall studies were again becoming frequent in Brazil (Moreira, 2006). The search for papers was done in September of 2017 using the key-words "insect*" and "gall*" in the title, abstract or list. The resulting papers had their titles and abstracts (and when necessary the full text) inspected to filter out only studies on galling insects in Brazil. Thus, papers were included in the compilation only when it was explicitly indicated that the study was fully or partially performed within Brazil.

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The selected papers were sorted by year and journal. The historical trend in the number of publications per year was evaluated using Pearson correlation ($P < 0.05$). The diversity of journals that published papers on the subject from 1988 to 2017 was evaluated using the Shannon-Wiener diversity index (H'). This index is frequently used in ecological studies but has also been applied to estimate journal diversity over time in scientometric studies (*e.g.,* Nabout *et al.,* 2012; Vaz *et al.,* 2015). Pearson correlation was then used to evaluate the relationship between the journal diversity index and year. Journals were ranked by importance according to the number of papers published on the subject.

All compiled papers were classified according to topic – the area(s) of knowledge they best matched – by inspecting the title and the abstract (or the full text if necessary). The topics included: agriculture (focusing on agricultural pests), botanical anatomy (anatomical, morphological and histochemical focus on galls), ecology (investigating ecological factors at population, community or biogeographical levels), genetics (genetic diversity), inventory (checklists of galls and host plants), taxonomy (focusing on systematics, descriptions and revisions of galling species) and reviews (compiling data from the literature or purely theoretical treatments). Papers that fit more than one topic were counted in each. The number of citations of each paper was also determined through the SCOPUS database (www.scopus.com), and compared among topics using ANOVA and among years using linear regression.

To give an overview of the distribution of papers identified as inventories, papers were classified by location (Brazilian region and state) according to the content and the description of the authors. This was done by obtaining data from the Portal de Periódicos Capes database and performing an additional search (through Google Scholar and bibliographies in the compiled papers). Papers were considered inventories only if they presented primary data and sampled the community of host plants. Studies that inventoried the diversity of insect galls of only one species of host plant were classified under the topic "ecology". Studies that compiled information on the occurrence of insect galls from secondary data (literature or museums) were considered under the topic "review". Inventories carried out in more than two Brazilian states were included under each state involved.

RESULTS

A total of 1,378 papers were recovered for the period of 1988 to 2017, 182 of which dealt with insect galls in Brazil (Supplementary Material 1). The number of publications was found to have increased over the last 30 years ($r = 0.82$, $p < 0.001$), and especially in the last decade (Fig. 1a). A significant increase in the diversity of journals that published on the subject was also found ($r = 0.90$, $p < 0.05$, Fig. 1b). The publications came from 67 different journals, with the ten most important having published 48.35% of all the papers (Fig. 2). The top three journals, Revista Brasileira de Entomologia (24 papers), Biota Neotropica (17) and Brazilian Journal of Biology (11), represented 28.57% of all the publications.

The compiled papers comprise a variety of different topics (Fig. 3a). The most common topic was ecology (94 papers), followed by inventory (29) and taxonomy (27), which together represented 82.41% of all the publications. The topics of the remaining papers were anatomy (15), review (9), agriculture (7) and genetics (2). Among the subtopics of ecology (Fig. 3b), there were papers on community ecology (47), population ecology (46) and biogeography (2). The top ten most cited papers of the 182 compiled studies are presented in Table 1, among which Fernandes & Price (1988) and Fernandes & Price (1992) stand out. The average number of total citations per paper was 16.05 (± 27.66). There were no differences among papers on different topics in the average number of total citations ($F_{(7,174)} = 1.39$; $p = 0.21$), but as expected older papers were cited more than more recent papers ($r^2 = 0.43$; $p < 0.001$). Considering the yearly rate of citation, 60.98% of the papers had less than two citations per year and 36.81% had less than one citation per year.

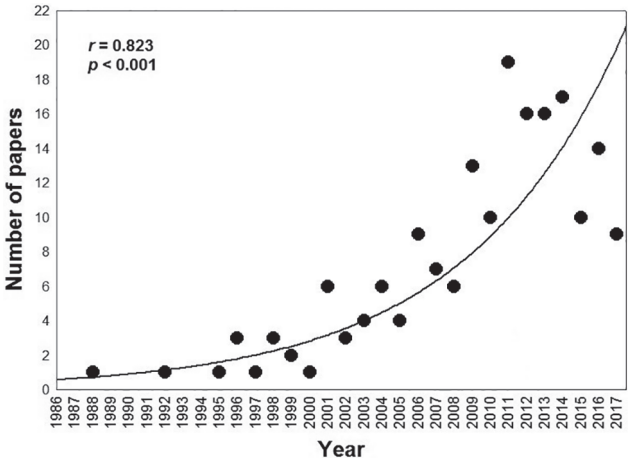

Figure 1. Historical trends (1988-2017) in publications on insect galls in Brazil (from CAPES database): (a) number of publications per year; and (b) diversity indexes of journals that published on the subject.

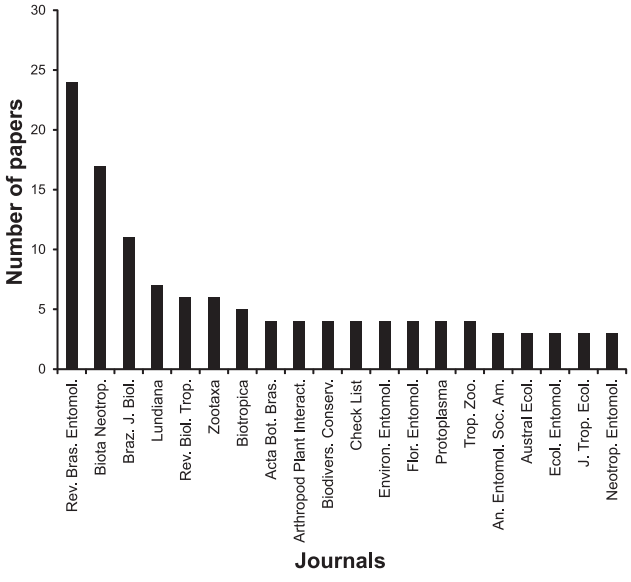

Figure 2. Main journals that published on insect galls in Brazil (from CAPES database).

Table 1. The most frequently cited papers about insect galls in Brazil published from 1988 to 2017 (from CAPES database).

Journal	Title	Authors	Citations*
Oecologia	Biogeographical gradients in galling species richness – Tests of hypotheses	Fernandes & Price (1988)	190
Oecologia	The adaptive significance of insect gall distribution: survivorship of species in xeric and mesic habitats	Fernandes & Price (1992)	173
Journal of Biogeography	Global patterns in local number of insect galling species	Price *et al.* (1998)	157
Functional Ecology	The ecological function of extrafloral nectaries: Herbivore deterrence by visiting ants and reproductive output in *Caryocar brasiliense* (Caryocaraceae)	Oliveira (1997)	134
Biodiversity and Conservation	Biodiversity of galling insects: Historical, community and habitat effects in four neotropical savannas	Gonçalves-Alvim & Fernandes (2001)	92
Annals of the Entomological Society of America	How Many Species of Gall-Inducing Insects Are There on Earth, and Where Are They?	Espírito-Santo & Fernandes (2007)	91
Revista Brasileira de Entomologia	Are gall midge species (Diptera, Cecidomyiidae) host-plant specialists?	Carneiro *et al.* (2009)	73
Ecological Entomology	The occurrence and effectiveness of hypersensitive reaction against galling herbivores across host taxa	Fernandes & Negreiros (2008)	64
Tropical Zoology	Galling insects on neotropical species of *Baccharis* (Asteraceae)	Fernandes *et al.* (1996)	61
Brazilian Journal of Biology	Insect galls from Serra de São José (Tiradentes, MG, Brazil)	Maia & Fernandes (2004)	60

* Number of citations in the SCOPUS database at 20/02/2018.

Forty-eight papers were inventories (Supplementary Material 2). Most of the insect gall inventories were located in Southeast Brazil (29 papers), followed by the Central-West and Northeast regions, with eight papers each (Fig. 4a). The North and South regions were the least studied, with two and one papers, respectively. Inventories of insect galls in Brazil were performed in 13 of the 27 Brazilian states (including the Federal District) (Fig. 5a), although the states of origin of most of the first authors represented only eight states, and were usually in Southeast Brazil (Fig. 5b). Among Brazilian states, Minas Gerais led in number of papers (16), followed by Rio de Janeiro (9) and Goiás (6) (Fig. 4b).

DISCUSSION

The results showed a significant increase in the number of papers published on insect galls in Brazil over the past 30 years, and especially over the last decade (2008-2017). The growing number of publications on this topic follows a global trend of exponential growth in the number of scientific publications over recent decades (Nabout *et al.,* 2012; Nabout *et al.,* 2015; Vaz *et al.,* 2015). Scientometric analyses have also shown a significant increase in zoological scientific production, as has been demonstrated for mammalogy (Brito *et al.,* 2009), carcinology (Nabout *et al.,* 2010) and dipterology (Santos *et al.,* 2017). Furthermore, recent scientometric studies have shown substantial growth in the scientific production of Latin American (*e.g.,* Garcia *et al.,* 2012), which was also observed for publications on insect galls, mainly due to the large contribution of Brazilian studies (Grandez-Rios *et al.,* 2015).

A large number of scientific journals (67) published papers about Brazilian insect galls, but the three most important in terms of number of publications were Brazilian journals (*i.e.,* Revista Brasileira de Entomologia, Biota Neotropica and Brazilian Journal of Biology). On the other hand, the ten most cited papers on the subject were almost all published in international journals (such as Oecologia, Journal of Biogeography and Functional Ecology). These results indicate a great degree of regionalism in the scientific production on insect galls in Brazil, since most of papers were published in regional journals (frequently in Portuguese) usually with low impact factors. Consequently, the number of citations per study and per year is generally low, which is relatively common for publications of Latin American authors (Nabout *et al.,* 2015). An increase in the diversity of journals that publish on the subject was also found, which indicates that over the last few years a greater variety of aspects of insect gall diversity has been studied in Brazil.

Considering the topics that studies on insect galls in Brazil have focused on, approximately 50% of the publications were classified under ecology, *i.e.,* investigations on the biology of galling species or the tests of ecological hypothesis. For example, Fernandes & Price (1988), the most cited paper about insect galls in Brazil, tested several ecological hypotheses with emphasis on the hypotheses of hygrothermal stress and plant species richness, which remain the most frequently tested hypotheses in such studies. Two other important topics of insect gall studies in Brazil were inventory and taxonomy. Inventories represented 15.9% of the compiled papers and focused on the occurrence and morphological characterization of insect galls of different Brazilian sites. Inventory papers are important for describing insect gall diversity at different sites and provide information necessary for the development of other types of studies. Taxonomic studies, in turn, represented 14.8% of all the publications. Based on previous studies that estimated the potential number of galling species from Brazil as being much higher than the number of described species (Espírito-Santo & Fernandes, 2007; Araújo *et al.,* 2014; Grandez-Rios *et al.,* 2015), taxonomic studies are very important for describing gall-inducer diversity, particularly of Cecidomyiidae, the most important gall-inducing insect group in the Neotropical region (Gagné, 1994).

Regarding the distribution of insect gall inventories among the geographical regions of Brazil, it is clear that there is a significant bias for studies in Southeast Brazil, which represents 60.4% of the publications (see Figs. 4 and 5). A similar pattern was also found for the states of origin of the first author, which are also concen-

trated in Southeast Brazil. These biases are due to the states of Minas Gerais and Rio de Janeiro, which have historically been the most important Brazilian research centers (both in article publishing and in staff training) regarding galls and galling insects, in particular the laboratories of G.W. Fernandes (Universidade Federal de Minas Gerais) and V.C. Maia (Museu Nacional, Universidade Federal do Rio de Janeiro), respectively. The former re-

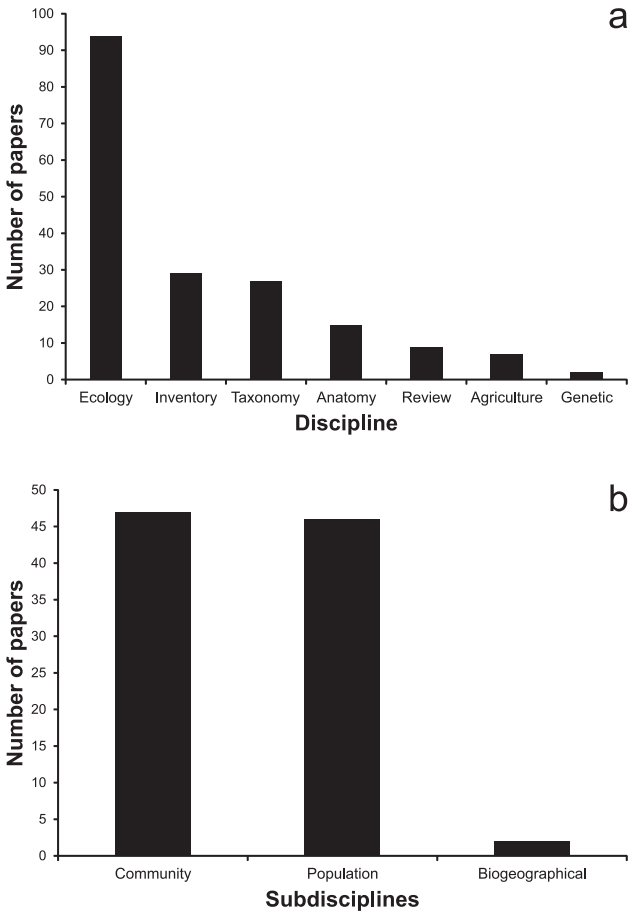

Figure 3. Number of publications about insect galls in Brazil (from CAPES database): (a) by topics (knowledge areas); and (b) by subtopics of ecology.

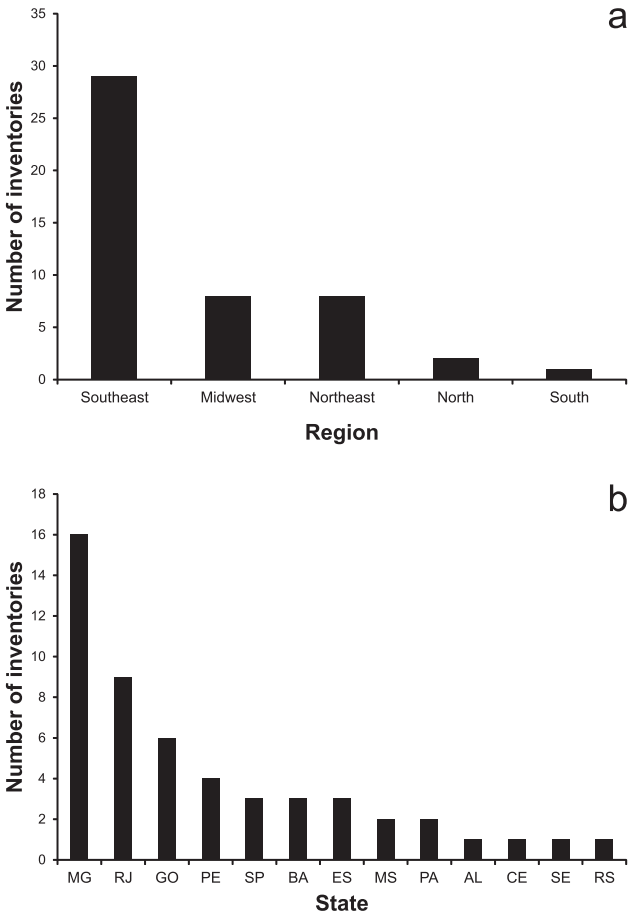

Figure 4. Number of inventories of insect galls in Brazil (CAPES and additional databases): (a) number of publications for Brazilian regions; and (b) number of publications for Brazilian states.

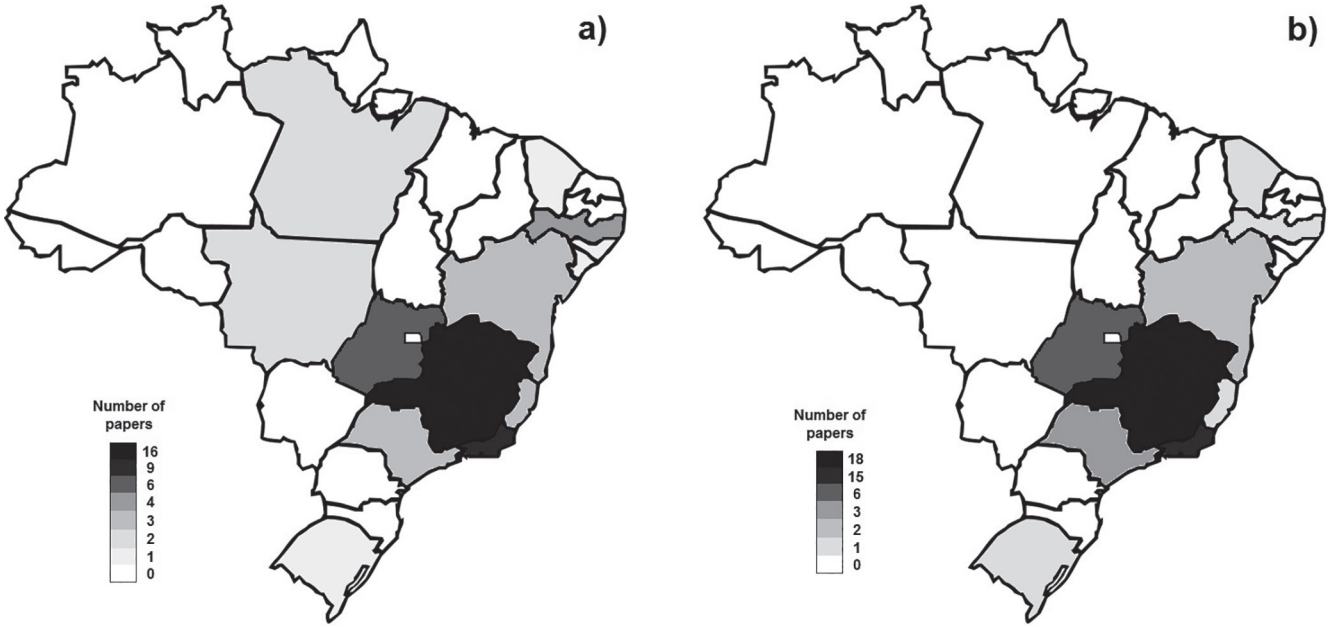

Figure 5. Geographic distribution of insect gall inventories among Brazilian states (from CAPES and additional databases): (a) the distribution of study area locations; and (b) distribution of the state of origin of the first author.

search center has been dedicated to ecological research over the past three decades, while the latter has focused on taxonomic studies and faunistic inventories since the 1990s. Despite the increasing number of insect gall inventories in Brazil, the results show that there have been no papers published on the occurrence of insect galls in 51.8% of the states of Brazil. This result can be attributed to the lack of professionals in this area of study in most Brazilian states, which may indicate a problem in the training of scientists in Brazil, which tends to be concentrated in the Southeast region of the country.

CONCLUSIONS

The present study documents an increase in scientific production regarding insect galls in Brazil. Some well-studied topics, especially ecology, inventory and taxonomy, have contributed to the description and elucidation of patterns of the diversity of these insects in the Neotropical region (Fernandes & Santos, 2014). On the other hand, there is great geographical bias among insect gall studies in Brazil, with most of the data acquired, and researchers involved, being concentrated in the Southeast region of the country. This spatial bias, along with estimates that suggest an enormous diversity of galling insects in Brazil (Espírito-Santo & Fernandes, 2007; Grandez-Rios *et al.,* 2015), make it clear that much remains to be done with regard to galls and galling insects in Brazil. A future challenge for researchers conducting studies about Brazilian insect galls is to increase the rate of publication in international journals with higher impact factors and, consequently, increase the average number of citations per study.

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SUPPLEMENTARY MATERIAL 1

List of papers about insect galls and galling species in Brazil published in peer-reviewed journals between 1988 and 2017 compiled from papers indexed in the platform "Portal de Periódicos Capes" (www.periodicos.capes.gov.br).

N	Title	Year	Journal
1	Biogeographical gradients in galling species richness – Tests of hypotheses	1988	Oecologia
2	Adaptive significance of insect gall distribution: survivorship of species in xeric and mesic habitats	1992	Oecologia
3	Utilization of *Apion* sp. (Coleoptera apionidae) galls by an ant community in southeastern brazil	1995	Tropical Zoology
4	Fire effects on a *Palicourea rigida* (rubiaceae) gall midge: A test of the plant vigor hypothesis	1996	Biotropica
5	Galling insects on neotropical species of *Baccharis* (Asteraceae)	1996	Tropical Zoology
6	The highest diversity of galling insects: Serra do Cipó, Brazil	1996	Biodiversity Letters
7	The ecological function of extrafloral nectaries: Herbivore deterrence by visiting ants and reproductive output in *Caryocar brasiliense* (Caryocaraceae)	1997	Functional Ecology
8	Global patterns in local number of insect galling species	1998	Journal of Biogeography
9	Hypersensitivity as a Phenotypic Basis of Plant Induced Resistance Against a Galling Insect (Diptera: Cecidomyiidae)	1998	Environmental Entomology
10	Natural history of a gall-inducing weevil *Collabismus clitellae* (Coleoptera: Curculionidae) and some effects on its host plant *Solanum lycocarpum* (Solanaceae) in southeastern Brazil	1998	Annals of the Entomological Society of America
11	Abundance and impact of a Lepidopteran gall on *Macairea radula* (Melastomataceae) in the Neotropics	1999	International Journal of Ecology and Environmental Sciences
12	The interplay between plant traits and herbivore attack: A study of a stem galling midge in the neotropics	1999	Ecological Entomology
13	Distance-limited recolonization of burned cerrado by leaf-miners and gallers in central Brazil	2000	Environmental Entomology
14	Biodiversity of galling insects: Historical, community and habitat effects in four neotropical savannas	2001	Biodiversity and Conservation
15	Galling insect diversity patterns: the resource synchronisation hypothesis	2001	Oikos
16	Host plant response and phenotypic plasticity of a galling weevil (*Collabismus clitellae*: Curculionidae)	2001	Austral Ecology
17	Leaf gall abundance on *Avicennia germinans* (Avicenniaceae) along an interstitial salinity gradient	2001	Biotropica
18	The occurrence and effectiveness of hypersensitive reaction against galling herbivores across host taxa	2001	Ecological Entomology
19	Vigour of a dioecious shrub and attack by a galling herbivore	2001	Ecological Entomology
20	Host plant effects on the development and survivorship of the galling insect *Neopelma baccharidis* (Homoptera: Psyllidae)	2002	Austral Ecology
21	Influence of host-plant sex and habitat on survivorship of insect galls within the geographical range of the host-plant	2002	Tropical Zoology
22	Tests of hypotheses on patterns of gall distribution along an altitudinal gradient	2002	Tropical Zoology
23	Complex interactions envolving a gall midge *Myrciamyia maricaensis* Maia (Diptera, Cecidomyiidae), phytophagous modifiers and parasitoids	2003	Revista Brasileira de Zoologia
24	Galling insects (Diptera: Cecidomyiidae) survive inundation during host plant flooding in Central Amazonia	2003	Biotropica
25	Hypersensitivity of *Fagus sylvatica* L. against leaf galling insects	2003	Trees
26	Occurrence and characterization of entomogen galls in plants from natural vegetation areas in Delfinópolis, MG, Brazil	2003	Brazilian Journal of Biology
27	A key to genera to Eriococcidae (Hemiptera: Coccoidea) from the Neotropical region and a revision of *Pseudotectococcus* Hempel (Eriococcidae), a gall inducing scale insect genus from Brazil, with a description of a new species	2004	Lundiana
28	Edge effect and species-area relationships in the gall-forming insect fauna of natural forest patches in the Brazilian Pantanal	2004	Biodiversity and Conservation
29	Effects of genetic variability and habitat of *Qualea parviflora* (Vochysiaceae) on herbivory by free-feeding and gall-forming insects	2004	Annals of Botany
30	Gall-inducing jumping plant-lice of the Neotropical genus *Baccharopelma* (Hemiptera, Psylloidea) associated with *Baccharis* (Asteraceae)	2004	Journal of Natural History
31	Insect galls from Serra de São José (Tiradentes, MG, Brazil)	2004	Brazilian Journal of Biology
32	Novas espécies de *Prodecatoma* (Hymenoptera, Eurytomidae) associadas a galhas em frutos de duas espécies de *Psidium* L. (Myrtaceae), com comentários sobre *Prodecatoma spermophaga* Costa-Lima	2004	Revista Brasileira de Entomologia
33	A new genus and species of gall midge (Diptera: Cecidomyiidae) associated with *Waltheria indica* L. (Sterculiaceae)	2005	Zootaxa
34	Convergence in the variation of local and regional galling species richness	2005	Neotropical Entomology
35	Insetos galhadores associados a duas espécies de plantas invasoras de áreas urbanas e peri-urbanas	2005	Revista Brasileira de Entomologia
36	Two new species of Asphondyliini (Diptera: Cecidomyiidae) associated with *Bauhinia brevipes* (Fabaceae) in Brazil	2005	Zootaxa
37	Distribution and frequency of galls induced by *Anisodiplosis waltheriae* Maia (Diptera: Cecidomyiidae) on the invasive plant *Waltheria indica* L. (Sterculiaceae)	2006	Neotropical Entomology
38	Diversity of galling arthropods and host plants in a subtropical forest of Porto Alegre, southern Brazil	2006	Neotropical Entomology
39	Effects of host plant architecture on colonization by galling insects	2006	Austral Ecology
40	Influence of *Apion* sp. (Brentidae, Apioninae) stem-galls on induced resistance and leaf area of *Diospyros hispida* (Ebenaceae)	2006	Revista Brasileira de Entomologia
41	Insect galls occurring in *Miconia prasina* (Melastomataceae) in remnants of Atlantic forest of northeastern Brazil	2006	Lundiana
42	Insetos fitófagos associados ao murici da praia, *Byrsonima sericea* (Malpighiaceae), na Restinga de Jurubatiba (RJ)	2006	Revista Brasileira de Entomologia
43	Processes driving ontogenetic succession of galls in a canopy tree	2006	Biotropica
44	Sex-mediated herbivory by galling insects on *Baccharis concinna* (Asteraceae)	2006	Revista Brasileira de Entomologia
45	A comunidade de insetos galhadores da RPPN Fazenda Bulcão, Aimorés, Minas Gerais, Brasil	2006	Lundiana

N	Title	Year	Journal
46	Caracterização e distribuição espacial de galhas em *Clusia nemorosa* G. Mey (Clusiaceae) em uma área de Floresta Atlântica, Igarassu, PE	2007	Lundiana
47	Ecology and impact of Allorhogas sp. (Hymenoptera: Braconidae) and *Apion* sp. (Coleoptera: Curculionoidea) on fruits of *Miconia calvescens* DC (Melastomataceae) in Brazil	2007	Biological Control
48	Effect of aib on quality and phytossanity of *Caryocar brasiliense* Camb (Caryocaraceae) air layering	2007	Revista Arvore
49	Galling insects as bioindicators of land restoration in an area of Brazilian Atlantic forest	2007	Lundiana
50	How Many Species of Gall-Inducing Insects Are There on Earth, and Where Are They?	2007	Annals of the Entomological Society of America
51	Impact of a gall midge *Parkiamyia paraensis* (Diptera, Cecidomyiidae) on the Amazonian plant *Parkia pendula* (Fabaceae)	2007	Revista Brasileira de Entomologia
52	Plant architecture and meristem dynamics as the mechanisms determining the diversity of gall-inducing insects	2007	Oecologia
53	*Asphondylia gochnatiae*, a new species of gall midge (Diptera, Cecidomyiidae) associated with *Gochnatia polymorpha* (Less.) Cabrera (Asteraceae)	2008	Zootaxa
54	Ocorrência e caracterização de galhas de insetos em áreas de restinga de Bertioga (São Paulo, Brasil)	2008	Biota Neotropica
55	Phytotoxicity of the extracts of *Lonchocarpus muehlbergianus* Hassl. (Fabaceae) leaflets and galls on seed germination and early development of lettuce	2008	Acta Botanica Brasilica
56	Plant organ abscission and the green island effect caused by gallmidges (Cecidomyiidae) on tropical trees	2008	Arthropod-Plant Interactions
57	Relationships between host plant architecture and gall abundance and survival	2008	Revista Brasileira de Entomologia
58	Species-specific changes in tissue morphogenesis induced by two arthropod leaf gallers in *Lantana camara* L. (Verbenaceae)	2008	Australian Journal of Botany
59	A new genus and species of gall midge (Diptera, Cecidomyiidae) associated with *Myrcia retorta* (Myrtaceae)	2009	Revista Brasileira de Entomologia
60	Are gall midge species (Diptera, Cecidomyiidae) host-plant specialists?	2009	Revista Brasileira de Entomologia
61	*Asphondylia fructicola*, a new species of Cecidomyiidae (Diptera) associated with *Solanum* sp. (Solanaceae) from Brazil	2009	Revista Brasileira de Entomologia
62	Efeitos da sazonalidade e do tamanho da planta hospedeira na abundância de galhas de Cecidomyiidae (Diptera) em *Piper arboreum* (Piperaceae)	2009	Revista Brasileira de Entomologia
63	Gall inducing arthropods from a seasonally dry tropical forest in Serra do Cipó, Brazil	2009	Revista Brasileira de Entomologia
64	Insetos indutores de galhas da porção sul da Cadeia do Espinhaço, Minas Gerais, Brasil	2009	Revista Brasileira de Entomologia
65	Gall midge attack intensity and host-plant response in a Neotropical coastal ecosystem	2009	Revista Brasileira de Entomologia
66	*Grape phylloxera* in Brazil	2009	Acta Horticulturae
67	Influence of leaflet age in anatomy and possible adaptive values of the midrib gall of *Copaifera langsdorffii* (Fabaceae: Caesalpinioideae)	2009	Revista de Biologia Tropical
68	Intra-specific phenotypic variations in Lantana camara leaves affect host selection by the gall maker *Aceria lantanae*	2009	Biochemical Systematics and Ecology
69	Complexidade estrutural e diversidade de insetos galhadores em *Styrax pohlii* Fritsch (Styracaceae)	2009	Bioscience Journal
70	Two new gall-inducing genera and species of Eriococcidae (Hemiptera) on Malvaceae and Anacardiaceae from the Neotropics	2009	Lundiana
71	Within tree distribution of a gall-inducing *Eurytoma* (Hymenoptera, Eurytomidae) on *Caryocar brasiliense* (Caryocaraceae)	2009	Revista Brasileira de Entomologia
72	Description of the female, pupa and gall of *Pisphondylia brasiliensis* Couri and Maia, 1992 (Diptera: Cecidomyiidae, Schizomyiina) with new records	2010	Brazilian Journal of Biology
73	First record of galls in hog plum (*Spondias mombim* L.) panicles caused by *Clinodiplosis* (Diptera: Cecidomyiidae) and evaluation of genotypes in the State of Piauí	2010	Revista Brasileira de Fruticultura
74	Gall midges (Diptera, Cecidomyiidae) associated with *Aldina heterophylla* spr. ex Benth. (Fabaceae) from Brazil	2010	Biota Neotropica
75	Gall-inducing insect species richness as indicators of forest age and Health	2010	Environmental Entomology
76	Insect galls of the Parque Estadual Paulo César Vinha (Guarapari, ES, Brazil) [	2010	Biota Neotropica
77	[Ocorrência e caracterização de galhas entomógenas em uma área de floresta estacional semidecídua em Goiânia, Goiás, Brasil	2010	Acta Botanica Brasilica
78	Pattern of attack of a galling insect reveals an unexpected preference-performance linkage on medium-sized resources	2010	Revista Brasileira de Entomologia
79	Photosynthetic efficiency of *Clusia arrudae* leaf tissue with and without Cecidomyiidae galls	2010	Brazilian Journal of Biology
80	Redifferentiation of leaflet tissues during midrib gall development in *Copaifera langsdorffii* (Fabaceae)	2010	South African Journal of Botany
81	Two new species of *Lopesia* Rübsaamen (Diptera, Cecidomyiidae) from Brazil, with an identification key of species	2010	Biota Neotropica
82	A new genus and species of gall midge (Diptera, Cecidomyiidae) associated with *Microgramma vacciniifolia* (Langsd. & Fisch.) Copel. (Polypodiaceae) from Brazil	2011	Revista Brasileira de Entomologia
83	Abundance of gall-inducing insect species in sclerophyllous savanna: Understanding the importance of soil fertility using an experimental approach	2011	Journal of Tropical Ecology
84	*Burseramyia braziliensis*, a new species of gall midge (Diptera, Cecidomyiidae, Asphondyliini) associated with *Swartzia langsdorffii* Raddi (Fabaceae)	2011	Biota Neotropica
85	*Calophya latiforceps*, a new species of jumping plant lice (Hemiptera: Calophyidae) associated with *Schinus terebinthifolius* (Anacardiaceae) in Brazil	2011	Florida Entomologist
86	Can host plant richness be used as a surrogate for galling insect diversity?	2011	Tropical Conservation Science
87	Characterization of insect galls, gall makers, and associated fauna of Platô Bacaba (Porto de Trombetas, Pará, Brazil)	2011	Biota Neotropica
88	Cytological and histochemical gradients on two *Copaifera langsdorffii* Desf. (Fabaceae)-Cecidomyiidae gall systems	2011	Protoplasma
89	Differential female attack and larval performance of a galling cecidomyiid on the host, *Astronium fraxinifolium* (Anacardiaceae), in contrasting habitats	2011	Entomological News
90	Distribution of a leaf vein gall in *Caryocar Brasiliense* (Caryocaraceae) tree	2011	Revista Caatinga

N	Title	Year	Journal
91	Diversity of gall-inducing insects in the high altitude wetland forests in Pernambuco, Northeastern Brazil	2011	Brazilian Journal of Biology
92	Diversity of galling insects in *Styrax pohlii* (Styracaceae): Edge effect and use as bioindicators	2011	Revista de Biologia Tropical
93	Fire increases insect herbivory in a neotropical savanna	2011	Biotropica
94	Herbivory, pathogens, and epiphylls in araucaria forest and ecologically-managed tree monocultures	2011	Forest Ecology and Management
95	Insect galls from Serra dos Pireneus, GO, Brazil [Galhas de insetos da Serra dos Pireneus, GO, Brasil]	2011	Biota Neotropica
96	Insect herbivores associated with *Baccharis dracunculifolia* (Asteraceae): Responses of gall-forming and free-feeding insects to latitudinal variation	2011	Revista de Biologia Tropical
97	Richness of gall-inducing insects in the tropical dry forest (caatinga) of Pernambuco	2011	Revista Brasileira de Entomologia
98	Size, age and composition: Characteristics of plant taxa as diversity predictors of gall-midges (Diptera: Cecidomyiidae)	2011	Revista de Biologia Tropical
99	Spatial distribution of a spherical gall (Hymenoptera, Eulophidae) on *Caryocar brasiliense* (Caryocaraceae)	2011	Revista Brasileira de Entomologia
100	Two new species of gall midges (Diptera, Cecidomyiidae) associated with *Erythroxylum ovalifolium* Peyr. (Erythroxylaceae) from the barra de Maricá restinga, Maricá, Rio de Janeiro, Brazil [	2011	Brazilian Journal of Biology
101	Characterization of galls, insect galls and associated fauna of Ecological Station of Jataí (Luiz Antônio, SP)	2012	Biota Neotropica
102	Edge effect benefits galling insects in the Brazilian Amazon	2012	Biodiversity and Conservation
103	*Eugeniamyia dispar* in Surinam cherry: Associated parasitoids, population dynamics and distribution of plant galls	2012	Revista Brasileira de Fruticultura
104	Gall-inducing insects from Atlantic forest of Pernambuco, Northeastern Brazil	2012	Biota Neotropica
105	Distribuição de insetos galhadores em diferentes formações vegetais e paisagens do cerrado brasileiro	2012	Bioscience Journal
106	Herbivory among habitats on the Neotropical tree *Cnidoscolus quercifolius* Pohl. in a seasonally deciduous forest	2012	Brazilian Journal of Biology
107	Galhas de insetos em habitats xérico e mésico em região de transição Cerrado-Caatinga no norte de Minas Gerais, Brasil	2012	Neotropical Biology and Conservation
108	List of plants with galls induced by insects from the UNILAVRAS/Boqueirão Biological Reserve, Ingaí, state of Minas Gerais, Brazil	2012	Check List
109	Mutualism from the inside: Coordinated development of plant and insect in an active pollinating fig wasp	2012	Arthropod-Plant Interactions
110	Population ecology of the multivoltine Neotropical gall midge *Eugeniamyia dispar* (Diptera, Cecidomyiidae)	2012	Iheringia Série Zoologia
111	Population structure and genetic diversity analysis in *Gynaikothrips uzeli* (Zimerman, 1909) (Thysanoptera: Phlaeothripidae) by RAPD markers	2012	Bulletin of Entomological Research
112	Relationship between host plant diversity and gall-inducing insect's richness in the Brazilian Cerrado	2012	Neotropical Biology and Conservation
113	Richness of hymenopterous galls from South America	2012	Papéis Avulsos de Zoologia
114	Seasonal variation of natural mortality factors of the guava psyllid *Triozoida limbata*	2012	Bulletin of Entomological Research
115	Source-sink relationship and photosynthesis in the horn-shaped gall and its host plant *Copaifera langsdorffii* Desf. (Fabaceae)	2012	South African Journal of Botany
116	Stem galls drain nutrients and decrease shoot performance in *Diplusodon orbicularis* (Lythraceae)	2012	Arthropod-Plant Interactions
117	A new gall-inducing genus and species of Eriococcidae (Hemiptera: Sternorrhyncha: Coccoidea) on Sapindaceae from Brazil	2013	Zootaxa
118	A new genus and species of Lasiopteridi (Diptera, Cecidomyiidae) associated with *Myrciaria delicatula* (Myrtaceae) from Brazil, with identification keys of tribes and unplaced genera	2013	Biota Neotropica
119	Biology and systematics of gall-inducing triozids (Hemiptera: Psylloidea) associated with *Psidium* spp. (Myrtaceae)	2013	Zootaxa
120	Comparing galling insect richness among Neotropical savannas: Effects of plant richness, vegetation structure and super-host presence	2013	Biodiversity and Conservation
121	Gall-inducing insects from Campos de Altitude, Brazil [Insetos indutores de galhas de Campos de Altitude, Brazil	2013	Biota Neotropica
122	Gall-inducing insects from Serra do Cabral, Minas Gerais, Brazil	2013	Biota Neotropica
123	Gall-inducing insects of an araucaria forest in southern Brazil	2013	Revista Brasileira de Entomologia
124	Host plants of insect-induced galls in areas of cerrado in the state of Goiás, Brazil	2013	Acta Botanica Brasilica
125	Insect galls from restingas of Southeastern Brazil, with new records	2013	Biota Neotropica
126	Insect galls of São Tomé das Letras (MG, Brazil)	2013	Biota Neotropica
127	Insect galls of the xeric vegetation of Ilha do Cabo Frio (Arraial do Cabo, RJ, Brazil)	2013	Biota Neotropica
128	Seasonal abundance of galling insects (Hymenoptera) on *Caryocar brasiliense* (Malpighiales: Caryocaraceae) trees in the cerrado	2013	Florida Entomologist
129	Synchronism between *Aspidosperma macrocarpon* (Apocynaceae) resources allocation and the establishment of the gall inducer *Pseudophacopteron* sp.(Hemiptera: Psylloidea)	2013	Revista de Biologia Tropical
130	The effect of fluctuating asymmetry and leaf nutrients on gall abundance and survivorship	2013	Basic and Applied Ecology
131	The genus Dasineura Rondani, 1840 (Diptera, Cecidomyiidae) in Brazil	2013	Brazilian Journal of Biology
132	Water stress and phenological synchronism between *Copaifera langsdorffii* (Fabaceae) and multiple galling insects: Formation of seasonal patterns	2013	Journal of Plant Interactions
133	Confirmation bias leads to overestimation of losses of woody plant foliage to insect herbivores in tropical regions	2014	PeerJ
134	Galling insects are bioindicators of environmental quality in a conservation unit	2014	Acta Botanica Brasilica
135	Habitat conversion and galling insect richness in tropical rainforests under mining effect	2014	Journal of Insect Conservation
136	Insect galls of Itamonte (Minas Gerais, Brazil): Characterization and occurrence	2014	Biota Neotropica
137	Insect galls of restinga areas of Ilha da Marambaia, Rio de Janeiro, Brazil	2014	Revista Brasileira de Entomologia
138	Insect galls of the Parque Nacional das Emas (Mineiros, GO, Brazil)	2014	Check List
139	*Leptocybe invasa* (Hymenoptera: Eulophidae), an exotic pest of *Eucalyptus*, in minas Gerais state, Brazil	2014	Florida Entomologist

N	Title	Year	Journal
140	Local and regional determinants of galling-insect richness in neotropical savanna	2014	Journal of Tropical Ecology
141	Native range density, host utilisation and life history of *Calophya latiforceps* (Hemiptera: Calophyidae): An herbivore of Brazilian Peppertree (*Schinus terebinthifolia*)	2014	Biocontrol Science and Technology
142	Patterns of cell elongation in the determination of the final shape in galls of *Baccharopelma dracunculifoliae* (Psyllidae) on *Baccharis dracunculifolia* DC (Asteraceae)	2014	Protoplasma
143	Redescription of *Japanagromyza inferna* Spencer, first recorded from Brazil, and a key to the Neotropical species of *Japanagromyza Sasakawa* (Diptera, Agromyzidae)	2014	ZooKeys
144	Same but different: Larval development and gall-inducing process of a non-pollinating fig wasp compared to that of pollinating fig-wasps	2014	Acta Oecologica
145	Senescent stem-galls in trees of *Eremanthus erythropappus* as a resource for arboreal ants	2014	Revista Brasileira de Entomologia
146	Structure of floral galls of *Byrsonima sericea* (Malpighiaceae) induced by *Bruggmanniella byrsonimae* (Cecidomyiidae, Diptera) and their effects on host plants	2014	Plant Biology
147	Temporal Variation in the Sex Ratio of a Natural Population of a Multivoltine Gall-Inducing Braconid Wasp	2014	Journal of Insect Behavior
148	The insect gall collection of the museu nacional/universidade federal do rio de janeiro: Biome cerrado, rupestrian fields	2014	Brazilian Journal of Biology
149	Unexpected high diversity of galling insects in the Amazonian upper canopy: The savanna out there	2014	PLoS ONE
150	Checklist of host plants of insect galls in the state of Goiás in the Midwest Region of Brazil	2015	Biodiversity Data Journal
151	Cytological cycles and fates in *Psidium myrtoides* are altered towards new cell metabolism and functionalities by the galling activity of *Nothotrioza myrtoidis*	2015	Protoplasma
152	Descriptions of two new *Pseudophacopteron* species (Hemiptera: Psylloidea: Phacopteronidae) inducing galls on *Aspidosperma* (Apocynaceae) in Brazil	2015	Acta Entomologica Musei Nationalis Pragae
153	Detection and distribution of cell growth regulators and cellulose microfibrils during the development of *Lopesia* sp. galls on *Lonchocarpus cultratus* (Fabaceae)	2015	Botany
154	Multivesicular bodies differentiate exclusively in nutritive fast-dividing cells in *Marcetia taxifolia* galls	2015	Protoplasma
155	New Species Diversity Revealed from Molecular and Morphological Characterization of Gall-Inducing *Calophya* spp. (Hemiptera: Calophyidae) from Brazilian Peppertree	2015	Florida Entomologist
156	Phenotypic plasticity and similarity among gall morphotypes on a superhost, *Baccharis reticularia* (Asteraceae)	2015	Plant Biology
157	Population dynamics of the gall inducer *Eriogallococcus isaias* (Hemiptera: Coccoidea: Eriococcidae) on *Pseudobombax grandiflorum* (Malvaceae)	2015	Journal of Natural History
158	Questioning the environmental stress hypothesis for gall diversity of restinga vegetation on dunes	2015	Revista de Biologia Tropical
159	The imbalance of redox homeostasis in arthropod-induced plant galls: Mechanisms of stress generation and dissipation	2015	Biochimica et biophysica acta. G, General subjects
160	*Clinodiplosis agerati* (Diptera, Cecidomyiidae), a new galling species associated with *Ageratum conyzoides* (Asteraceae) from Brazil	2016	Brazilian Journal of Biology
161	Galling Insect Species Richness and Leaf Herbivory in an Abrupt Transition between Cerrado and Tropical Dry Forest	2016	Annals of the Entomological Society of America
162	Galls in *Schinus polygamus* (Anacardiaceae): effects of forest structure on infestation intensity	2016	Brazilian Journal of Botany
163	Galls induced by *Calophya latiforceps* (Hemiptera: Calophyidae) reduce leaf performance and growth of Brazilian peppertree	2016	Biocontrol Science and Technology
164	*Holopothrips molzi* sp. n. (Thysanoptera, Phlaeothripidae): Natural history and interactions in Myrtaceae galls	2016	Zootaxa
165	How detrimental are seed galls to their hosts? Plant performance, germination, developmental instability and tolerance to herbivory in *Inga laurina*, a leguminous tree	2016	Plant Biology
166	Insect galls from Serra Geral, Caetité, Ba, Brazil	2016	Biota Neotropica
167	Insect galls of a protected remnant of the Atlantic Forest tableland from Rio de Janeiro State (Brazil)	2016	Revista Brasileira de Entomologia
168	Insect galls of Restinga de Marambaia (Barra de Guaratiba, Rio de Janeiro, RJ)	2016	Brazilian Journal of Biology
169	Insect galls on *Mikania glomerata* (Asteraceae) in an area of atlantic forest in Viçosa (Minas Gerais, Brazil)	2016	Check List
170	Manipulation of host plant cells and tissues by gall-inducing insects and adaptive strategies used by different feeding guilds	2016	Journal of Insect Physiology
171	Shifts in Plant Assemblages Reduce the Richness of Galling Insects Across Edge-Affected Habitats in the Atlantic Forest	2016	Environmental Entomology
172	The gall inducing insect community on *Baccharis concinna* (Asteraceae): The role of shoot growth rates and seasonal variations	2016	Lundiana
173	Where host plant goes, galls go too: New records of the Neotropical galling Cecidomyiidae (Diptera) associated with *Calophyllum brasiliense* Cambess. (Calophyllaceae)	2016	Check List
174	*Cecidonius pampeanus*, gen. et sp. n.: an overlooked and rare, new gall-inducing micromoth associated with *Schinus* in southern Brazil (Lepidoptera, Cecidosidae)	2017	ZooKeys
175	Characterization of entomogen galls from Mato Grosso do Sul, Brazil	2017	Revista Brasileira de Entomologia
176	Differences in leaf nutrients and developmental instability in relation to induced resistance to a gall midge	2017	Arthropod-Plant Interactions
177	Experimentally reducing species abundance indirectly affects food web structure and robustness	2017	Journal of Animal Ecology
178	*Neolasioptera pantaneira*, a new species of cecidomyiidae (Diptera) associated with *Aeschynomene denticulata* (Fabaceae) from Brazil	2017	Brazilian Journal of Biology
179	Patterns of gall infestation in *Heteropterys byrsonimifolia* A. Juss. in a forest-savannah ecotone	2017	Revista Ceres
180	Plant species richness mediates the effects of vegetation structure, but not soil fertility, on insect gall richness in a savanna in Brazil	2017	Journal of Tropical Ecology
181	The role of senescent stem-galls over arboreal ant communities structure in *Eremanthus erythropappus* (DC.) MacLeish (Asteraceae) trees	2017	Sociobiology
182	Understory host plant and insect gall diversity changes across topographic habitats differing in nutrient and water stress in the Brazilian Amazon rainforest	2017	Acta Amazonica

SUPPLEMENTARY MATERIAL 2

List of inventory papers about insect galls in Brazil compiled from papers indexed in the platform "Portal de Periódicos Capes" (www.periodicos.capes.gov.br), Google Scholar and in the references of the compiled papers.

N	Author	Title	Year	Journal
1	Fernandes *et al.,* 1988	Ocorrência e caracterização de galhas entomógenas na vegetação do campus Pampulha da Universidade Federal de Minas Gerais	1988	Revista Brasileira de Zoologia
2	Fernandes *et al.,* 1997	Insect-galls from savanna and rocky fields of the Jequitinhonha valley, Minas Gerais, Brazil	1997	Naturalia
3	Gonçalves-Alvim & Fernandes, 2001	Comunidades de insetos galhadores (Insecta) em diferentes fisionomias do cerrado em Minas Gerais, Brasil	2001	Revista Brasileira de Zoologia
4	Fernandes *et al.,* 2001	Distribution and morphology ofinsect galls of the Rio Doce Valley, Brazil	2001	Naturalia
5	Maia, 2001	The gall midges (Diptera, Cecidomyiidae) from three restingas of Rio de Janeiro State, Brazil	2001	Revista Brasileira de Zoologia
6	Julião *et al.,* 2002	Galhas de insetos e suas plantas hospedeiras no Pantanal sul-mato-grossense	2002	Naturalia
7	Urso-Guimarães *et al.,* 2003	Occurrence and characterization of entomogen galls in plants from natural vegetation areas in Delfinópolis, MG, Brazil	2003	Brazilian Journal of Biology
8	Maia & Fernandes, 2004	Insect galls from Serra de São José (Tiradentes, MG, Brazil)	2004	Brazilian Journal of Biology
9	Oliveira & Maia, 2005	Ocorrência e Caracterização de Galhas de Insetos na Restinga de Grumari (Rio de Janeiro, RJ, Brasil)	2005	Arquivos do Museu Nacional
10	Urso-Guimarães & Scareli-Santos, 2006	Galls and gall makers in plants from the Pé de Gigante Cerrado Reserve, Santa Rita do Passa Quatro, SP, Brazil	2006	Brazilian Journal of Biology
11	Fernandes & Negreiros, 2006	A comunidade de insetos galhadores da RPPN Fazenda Bulcão, Aimorés, Minas Gerais, Brasil	2006	Lundiana
12	Moreira *et al.,* 2007	Galling insects as bioindicators of land restoration in an areaof Brazilian Atlantic Forest	2007	Lundiana
13	Maia *et al.,* 2008	Ocorrência e caracterização de galhas de insetos em áreas de restinga de Bertioga (São Paulo, Brasil)	2008	Biota Neotropica
14	Carvalho-Fernandes *et al.,* 2009	Galhas entomógenas em um fragmento urbano de Mata Atlântica no centro de endemismo de Pernambuco	2009	Revista Brasileira de Biociências
15	Coelho *et al.,* 2009	Gall inducing arthropods from a seasonally dry tropical forest in Serra do Cipó, Brazil	2009	Revista Brasileira de Entomologia
16	Carneiro *et al.,* 2009	Insetos indutores de galhas da porção sul da Cadeia do Espinhaço, Minas Gerais, Brasil	2009	Revista Brasileira de Entomologia
17	Maia & Oliveira, 2010	Galhas de insetos da Reserva Biológica Estadual da Praia do Sul (Ilha Grande, Angra dos Reis, RJ)	2010	Biota Neotropica
18	Bregonci *et al.,* 2010	Galhas de insetos do Parque Estadual Paulo CéSar Vinha (Guarapari, ES, Brasil)	2010	Biota Neotropica
19	Santos *et al.,* 2010	Ocorrência e caracterização de galhas entomógenas em uma área de floresta estacional semidecídua em Goiânia, Goiás, Brasil	2010	Acta Botanica Brasilica
20	Maia, 2011	Characterization of insect galls, gall makers, and associated fauna of Platô Bacaba (Porto de Trombetas, Pará, Brazil)	2011	Biota Neotropica
21	Santos *et al.,* 2011	Diversity of gall-inducing insects in the high altitude wetland forests in Pernambuco, Northeastern Brazil	2011	Brazilian Journal of Biology
22	Araújo *et al.,* 2011	Insect galls from Serra dos Pireneus, GO, Brazil	2011	Biota Neotropica
23	Almada & Fernandes, 2011	Insetos indutores de galhas em florestas de terra firme e em reflorestamentos com espécies nativas na Amazônia Oriental, Pará, Brasil	2011	Boletim do Museu Paranaense Emílio Goeldi de Ciências Naturais
24	Santos *et al.,* 2011	Richness of gall-inducing insects in the tropical dry forest (caatinga) of Pernambuco	2011	Revista Brasileira de Entomologia
25	Saito & Urso-Guimarães, 2012	Characterization of galls, insect galls and associated fauna of Ecological Station of Jataí (Luiz Antônio, SP)	2012	Biota Neotropica
26	Santos *et al.,* 2012	Galhas de insetos em uma área de cerrado sentido restrito na região semi-urbana de Caldas Novas (Goiás, Brasil)	2012	Revista Brasileira de Biociências
27	Santos *et al.,* 2012	Gall-inducing insects from Atlantic forest of Pernambuco, Northeastern Brazil	2012	Biota Neotropica
28	Luz *et al.,* 2012	Galhas de insetos em habitats xérico e mésico em região de transição Cerrado-Caatinga no norte de Minas Gerais, Brasil	2012	Neotropical Biology and Conservation
29	Malves & Friero-Costa, 2012	List of plants with galls induced by insects from the UNILAVRAS/Boqueirão Biological Reserve, Ingaí, State of Minas Gerais, Brazil	2012	Check List
30	Carvalho-Fernandes *et al.,* 2012	The insect gall richness in preserved and anthropic areas of caatinga	2012	Revista Árvore
31	Coelho *et al.,* 2013	Gall-inducing insects from Campos de Altitude, Brazil	2013	Biota Neotropica
32	Coelho *et al.,* 2013	Gall-inducing insects from Serra do Cabral, Minas Gerais, Brazil	2013	Biota Neotropica
33	Toma & Mendonça Jr., 2013	Gall-inducing insects of an araucaria forest in southern Brazil	2013	Revista Brasileira de Entomologia
34	Maia, 2013	Insect galls of São Tomé das Letras (MG, Brazil)	2013	Biota Neotropica
35	Maia & Souza, 2013	Insect galls of the xeric vegetation of Ilha do Cabo Frio (Arraial do Cabo, RJ, Brazil)	2013	Biota Neotropica
36	Costa *et al.,* 2014	Galhas de insetos em uma área de transição caatinga-cerrado no Nordeste do Brasil	2014	Sitientibus série Ciências Biológicas
37	Maia *et al.,* 2014	Insect galls from Atlantic Forest areas of Santa Teresa, Espírito Santo, Brazil: characterization and occurrence	2014	Boletim do Museu de Biologia Mello Leitão
38	Maia, 2014	Insect galls of Itamonte (Minas Gerais, Brazil): Characterization and occurrence	2014	Biota Neotropica
39	Rodrigues *et al.,* 2014	Insect galls of restinga areas of Ilha da Marambaia, Rio de Janeiro, Brazil	2014	Revista Brasileira de Entomologia
40	Araújo *et al.,* 2014	Insect galls of the Parque Nacional das Emas (Mineiros, GO, Brazil)	2014	Check List
41	Silva *et al.,* 2015	Ocorrência e caracterização de galhas de insetos em um fragmento de mata semicaducifólia do Campus Samambaia, Goiânia, GO, Brasil	2015	Revista de Biologia Neotropical
42	Alcântara *et al.,* 2017	Ocorrência e caracterização de galhas em duas áreas do noroeste do Ceará, Brasil	2015	Natureza on line
43	Carvalho-Fernandes *et al.,* 2016	Diversity of insect galls associated with coastal shrub vegetation in Rio de Janeiro, Brazil	2016	Anais da Academia Brasileira de Ciências
44	Carvalho-Fernandes *et al.,* 2016	Insect galls from Serra Geral, Caetité, Ba, Brazil [Galhas de insetos da Serra Geral, Caetité, Bahia, Brasil]	2016	Biota Neotropica
45	Maia & Carvalho-Fernandes, 2016	Insect galls of a protected remnant of the Atlantic Forest tableland from Rio de Janeiro State (Brazil)	2016	Revista Brasileira de Entomologia
46	Maia & Silva, 2016	Insect galls of Restinga de Marambaia (Barra de Guaratiba, Rio de Janeiro, RJ) [Galhas de insetos da Restinga de Marambaia (Barra de Guaratiba, Rio de Janeiro, RJ)]	2016	Brazilian Journal of Biology
47	Urso-Guimarães *et al.,* 2017	Characterization of entomogen galls from Mato Grosso do Sul, Brazil	2017	Revista Brasileira de Entomologia
48	Bergamini *et al.,* 2017	Occurrence and characterization of insect galls in the Floresta Nacional de Silvânia, Brazil	2017	Papéis Avulsos de Zoologia

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