

LA CAJA DE HERRAMIENTAS DEL INVESTIGADOR

ENCONTRAR, LEER Y REDACTAR

Elaborado por: Miguel Barboza-Palomino

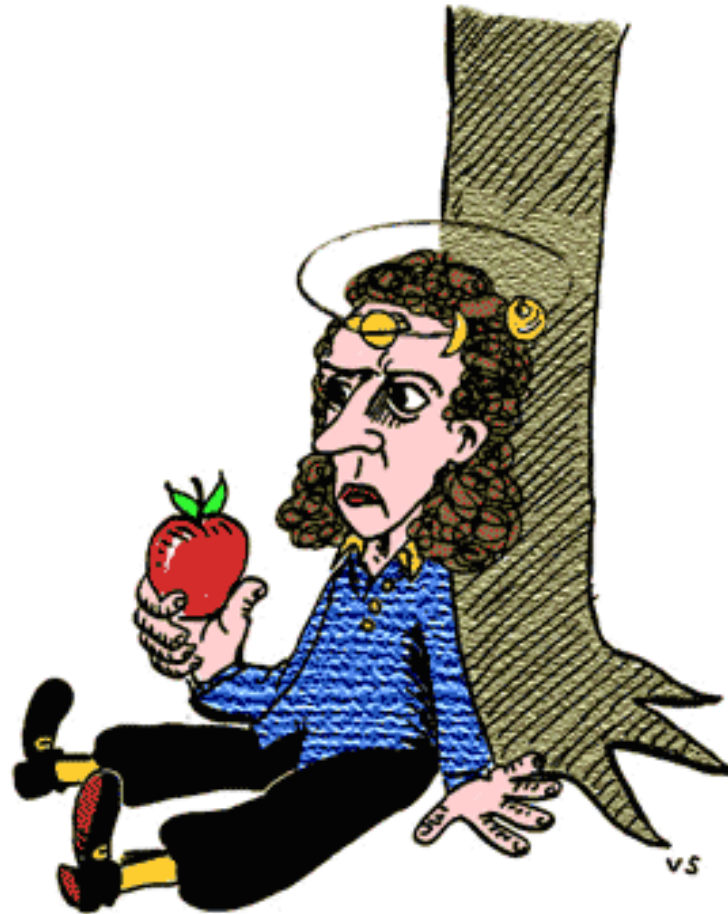
Cómo citar este documento (APA):

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¿QUÉ ES HACER INVESTIGACIÓN CIENTÍFICA?



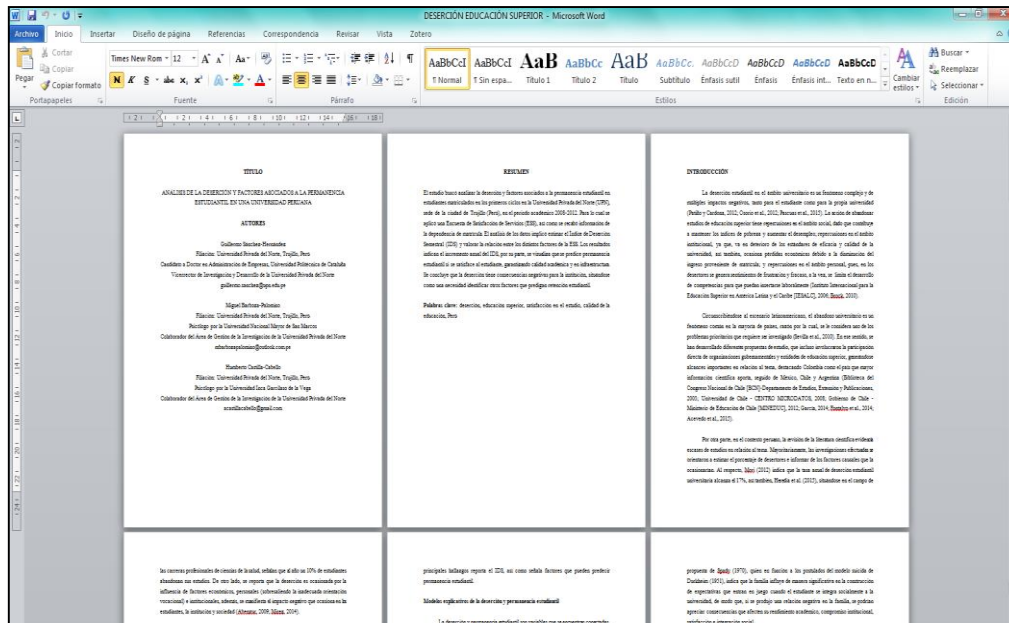
GLOSARIO

- Manuscrito = documento no publicado que informa los resultados de una investigación, generalmente presenta la estructura **I M R** y **D**. Donde, **I** es Introducción, **M** es Método, **R** es Resultados y **D** es Discusión.
- Artículo científico = documento publicado en una revista científica, generalmente presenta la estructura **I M R** y **D**.
- Revista científica = Publicación que contiene **artículos científicos**. Las revistas científicas además pueden publicar otro tipo de documentos (**editoriales, artículos teóricos, artículos metodológicos, reseñas, cartas al editor, noticias, comentarios...**). Se pueden identificar dos tipos de revistas científicas: «**categoría normal**», «**de corriente principal**».
- Base de datos (Bibliotecas virtuales) = *Sistema virtual* que agrupa **revistas científicas** (Algunas agrupan también libros). Determinan la categoría de la revista científica = «**categoría normal**», «**de corriente principal**».
- Citación = Cuando otros investigadores consideran de **forma explícita** el artículo científico en el desarrollo de nuevas investigaciones.

¿CUÁL ES LA ASPIRACIÓN DE LOS INVESTIGADORES?



- En el contexto nacional, se puede afirmar que es hacer público su investigación (Publicar en una revista científica).



¿CUÁL ES LA ASPIRACIÓN DE LOS EDITORES DE LAS REVISTAS CIENTÍFICAS?



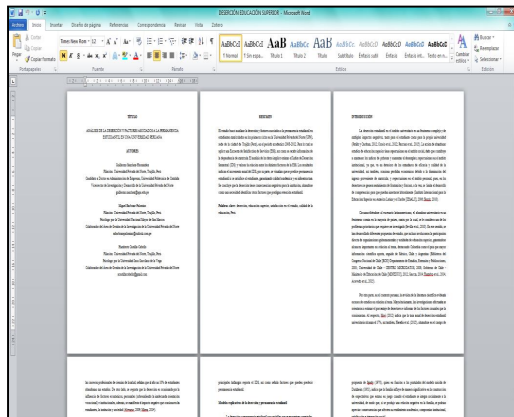
- En el contexto nacional, se puede afirmar que es hacer visible la revista. La visibilidad se logra «indexando o indizando» la revista a una base de datos.



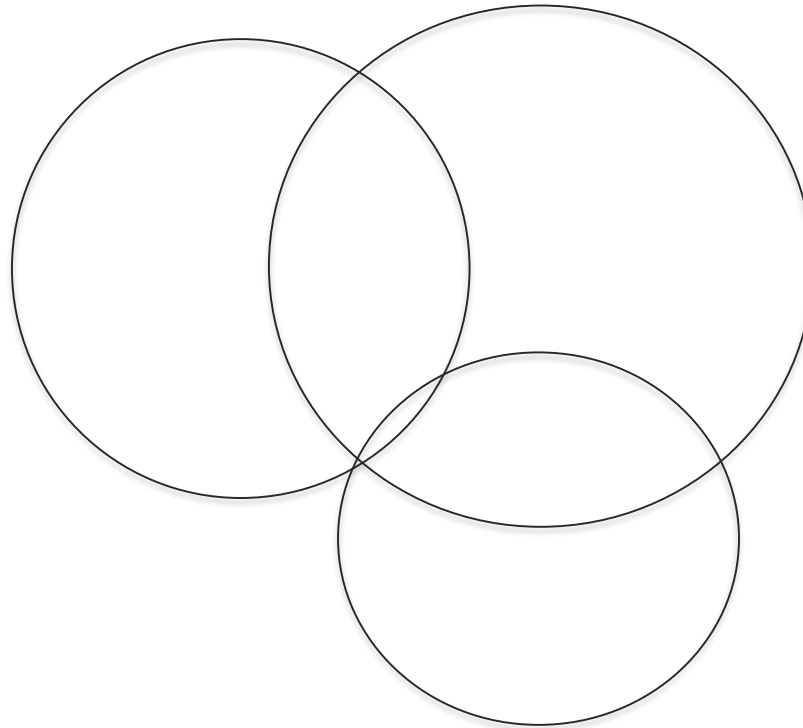
¿CUÁL ES LA ASPIRACIÓN DE LAS UNIVERSIDADES?



- La discusión vigente en relación a la calidad de las universidades está orientando a lograr que sus «académicos» planifiquen, desarrollen y **publiquen** los resultados de investigaciones científicas, de preferencia, en las revistas denominadas «**de corriente principal**».



BASES DE DATOS QUE AGRUPAN REVISTAS CIENTÍFICAS DE CORRIENTE PRINCIPAL



BASES DE DATOS QUE AGRUPAN REVISTAS CIENTÍFICAS «NORMALES»



¿CUÁL ES LA ASPIRACIÓN DE LAS UNIVERSIDADES?



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Year

- 2017 (6) >
- 2016 (10) >
- 2014 (5) >
- 2013 (1) >
- 2012 (1) >

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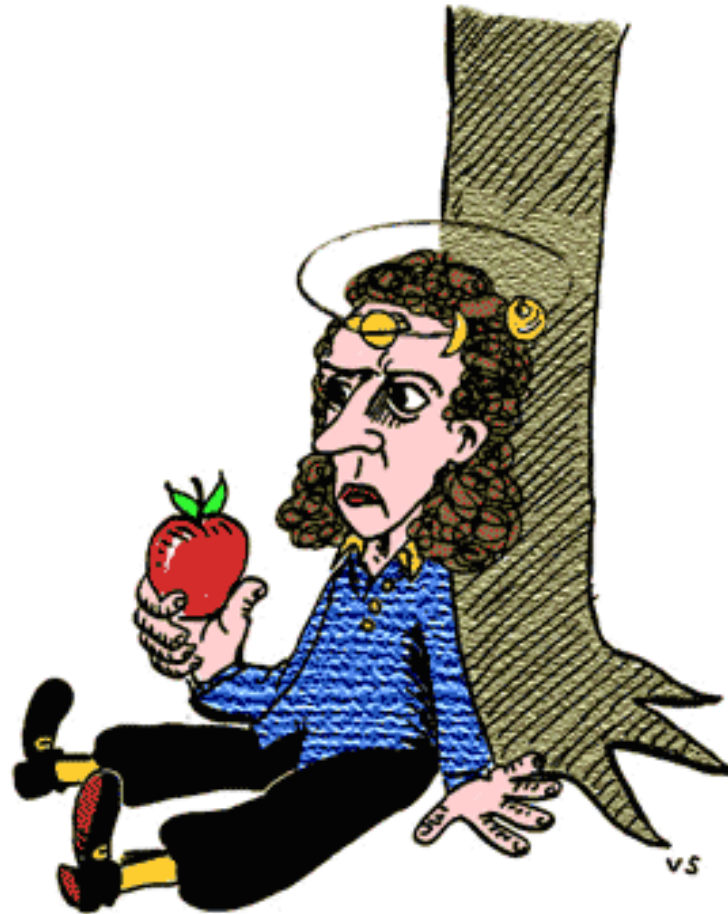
Author name

- Barboza-Palomino, M. (6) >
- Caycho, T. (4) >
- Caycho-Rodríguez, T. (2) >

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	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/> 1	Does culture influence in the adquisition of the milestones of motor development? [¿influye la cultura en la adquisición de los hitos del desarrollo motor?]	Caycho, T., Barboza-Palomino, M.	2017	Archivos Argentinos de Pediatría 115(2), pp. e144-e145 Open Access	0
	Encontrar texto completo Related documents				
<input type="checkbox"/> 2	Application of image analysis to optimization of the bread-making process based on the acceptability of the crust color	Castro, W., Oblitas, J., Chuquizuta, T., Avila-George, H.	2017	Journal of Cereal Science 74, pp. 194-199	0
	View abstract Encontrar texto completo View at Publisher Related documents				
<input type="checkbox"/> 3	Are there valid instruments? A necessary debate [¿Existen los instrumentos validos? Un debate necesario]	Ventura-León, J.L.	2017	Gaceta Sanitaria 31(1), pp. 71 Open Access	0
	Encontrar texto completo View at Publisher Related documents				
<input type="checkbox"/> 4	Is it possible to generalize in qualitative studies? [¿Es posible generalizar en estudios cualitativos?]	Ventura-León, J.L.,	2017	Ciencia e Saude	0

¿QUÉ ES HACER INVESTIGACIÓN CIENTÍFICA?



LA RUTA DE LA INVESTIGACIÓN CIENTÍFICA (I)



Viewpoint

Publish or Perish

PHIL CLAPHAM

The physicist Wolfgang Pauli reportedly once told a colleague, "I don't mind your thinking slowly. I mind your publishing faster than you can think." Certainly, biology has its share of individuals whose zeal for publication exceeds the thoroughness of their analyses, and who seem more interested in getting their research into a high-profile journal than in, well, getting it right. But a much larger problem lies with scientists who work for years but rarely submit their results to a refereed journal.

There are many reasons why this failure to publish is a scientific crime. The most obvious is that the information is lost to the world. When the scientist who has studied species X for two decades—and published not one jot of data—gets hit by a truck, most of that knowledge will be buried with him or her. The person lying under the truck's wheels may well have stimulated many colleagues, probably by presenting some findings at conferences (a common dodge to avoid actually writing something up). But without publications, that scientist's work will have been largely wasted.

Part of the problem, if I may be permitted a dubious food-related metaphor, is that some scientists live for the hunt, not for the cooking and serving. These are individuals who love to solve problems. For them, results always lead to more questions, which lead to more questions, and on and on. Instead of taking time to write up the work they've finished, they keep returning to the field. The field is fun.

Yet all research scientists—especially if they receive public funding—have a solemn obligation to publish their results. We don't disseminate information just for amusement or academic satisfaction. We do so because, ultimately,

judgments about the management and protection of any animal or plant population should be based upon the best—make that the best *available*—scientific data. Information that sits around unpublished for years is worthless to managers and to other scientists, and thus does nothing for the conservation of the organisms we study.

Publications are indeed everything in science. They are the fertilizer (no jokes, please, especially about any of my papers) that stimulates ideas in other scientists. Published knowledge is assimilated by colleagues and leads to more research: hypotheses are modified, rebutted, or confirmed, new paradigms are developed or old ones discarded. In a very real sense, publications *are* the scientific method.

Another vital reason to publish is peer review. Granted, the peer-review process is far from perfect, and we've all seen papers that are inadequate or just plain wrong, but which nonetheless managed to sneak through review unscathed. Ironically, some of these are in the highest-ranked journals, some of whose reviewers are, I fear, too busy or ill-chosen to do a good job. My friend Paul Wade and I joke about starting a journal called *Nature and Science Rebuttals*; we're convinced it would have a huge following.

But most of the time peer review is a very useful, constructive process. I have probably learned more about the business of conducting research from referee comments than from any other single source. Some of those reviews spared no feelings, but that's okay; I have never taken comments personally when they were given in good faith, which they almost always are.

Those who do not submit their research to peer review are preventing their work from attaining its full potential.

Worse, they risk making uncorrectable mistakes in study design. You can fix bad analysis and poor interpretation, but you can never redo a long-term field study. Imagine someone who has toiled away forever without publishing, and who finally submits his or her life's work to a journal—only to be told by the referees that because X, Y, and Z weren't incorporated into the study design 10 years ago, the work was largely a waste of effort.

It is all too easy to talk endlessly about one's ideas, and those who do this often become trapped in an illusory feedback loop. Talk to the public or to any non-specialist audience, and they'll of course tell you how terrific your theories are (they don't know any better); and if you hear enough of this unfettered praise, you may actually start to believe it. But run those same ideas past an expert referee, and you may find them suddenly wilting under the scrutiny.

This brings me to a rather less obvious reason to publish. As someone who has published around 100 papers, I can unequivocally tell you this: committing your work to paper forces you to think about your research in ways that you never will by simply talking about it. First, it requires that you carefully organize that sprawling mass that is your data. When that's done, the act of putting your methods, results, and discussion into words obliges you to define your thoughts quite precisely, and to consider the meaning of your work far more deeply than you ever will for a talk. Start to write, and you'll find ideas occurring to you that had never surfaced before. What's more, reading other papers will expose you to many concepts (and problems) that you had not previously considered. But if you do *not* do this, you will not be doing your research justice—guaranteed.

Downloaded from <http://hbsciencereview.com/philclapham/kyg/> by guest on February 29, 2016

BASE DE DATOS
(WoS, SCOPUS, Scielo)



REVISTA CIENTÍFICA DE
CORRIENTE PRINCIPAL



MANUSCRITO

LA RUTA DE LA INVESTIGACIÓN CIENTÍFICA (II)



POINTS FOR DEBATE

Does 'get visible or vanish' herald the end of 'publish or perish'?

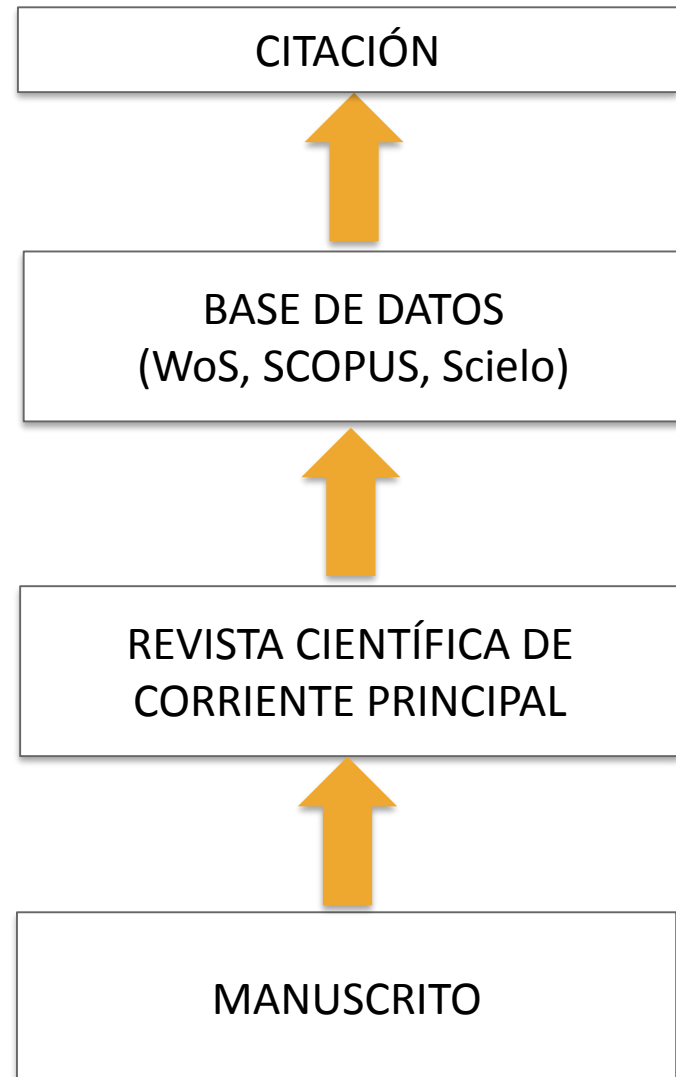
Joanne Doyle^{a*} and Michael Cuthill^b

^aAustralian Digital Futures Institute, University of Southern Queensland, Toowoomba, Australia; ^bInstitute for Resilient Regions, University of Southern Queensland, Toowoomba, Australia

In the contemporary higher education environment, the academic philosophy of 'publish or perish' is being challenged. 'Publish or perish' refers to the pressure in academia to develop and sustain a research career by disseminating research findings in peer-reviewed journals. The philosophy was first documented in 1942 (Garfield, 1996) yet its origins date back to 1665 when peer review was first used as a form of quality control to distinguish scientific journals from book publishing (Tobin, 2002). Peer review remains a principal procedure for judging the quality of research, and weeding out 'the charlatans, the misguided, and the fools' (Gad-el-Hak, 2004, p. 61).

The academic publishing process is important for communicating research findings and demonstrating research quality, and has remained an academic imperative encouraged by research funders and institutional leaders (Colquhoun, 2011). Professional recognition is achieved by publishing in high reputation journals that are regarded as prestigious. Academia tends to reward those with the longest CVs and the most publications (Neill, 2008). Yet there are multiple issues with using academic metrics for determining research quality.

For example, citation analysis is regarded as a poor substitute for qualitative review and peer assessment (Nightingale & Marshall, 2012) and focusing on impact factors may be a disincentive to pursue innovative research that has longer publication timeframes (Alberts, 2013). Quantity does not imply quality and as Gad-el-Hak warns, 'counting the publications of individuals should not be used to evaluate them' (Gad-el-Hak, 2004, p. 61).



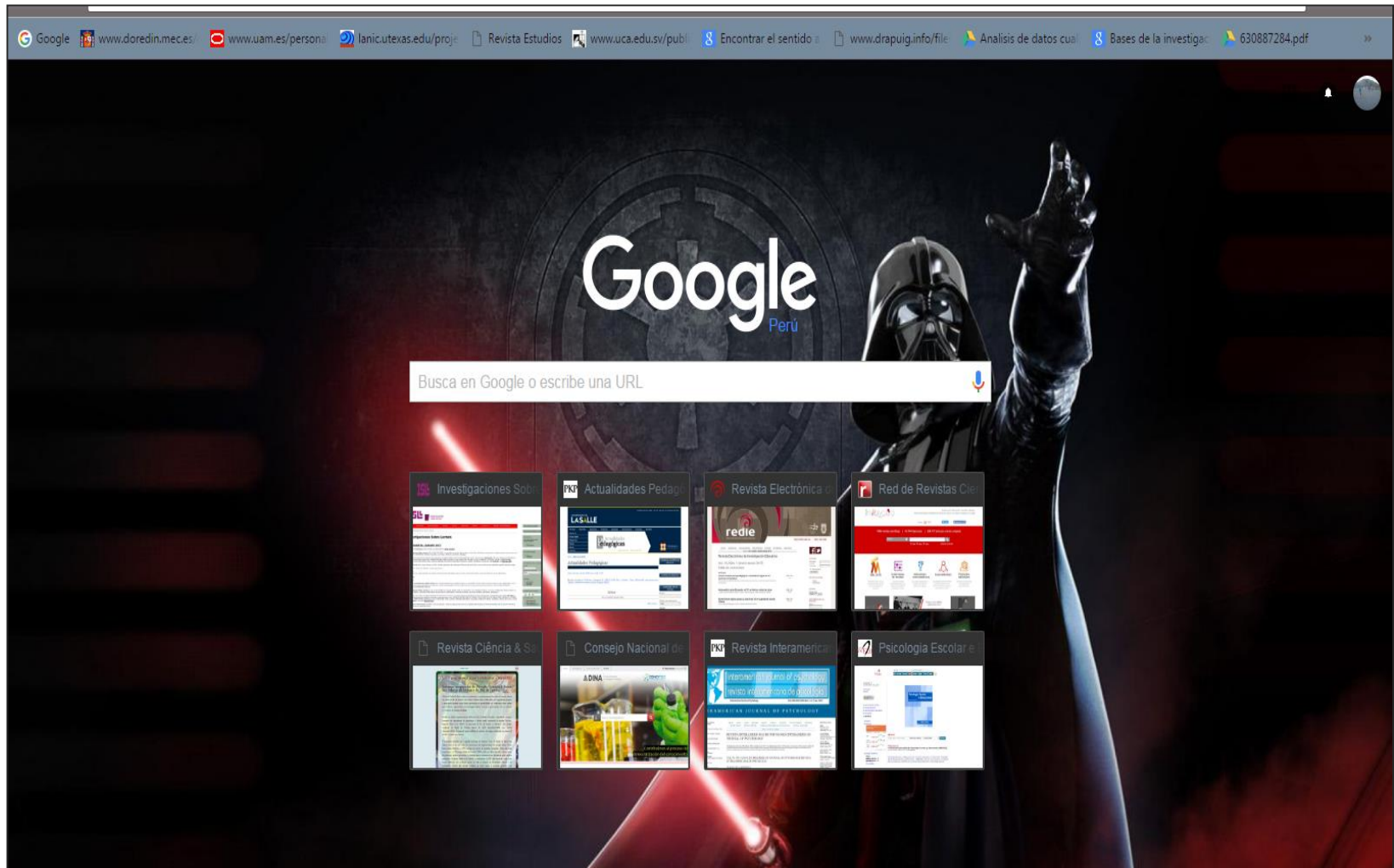




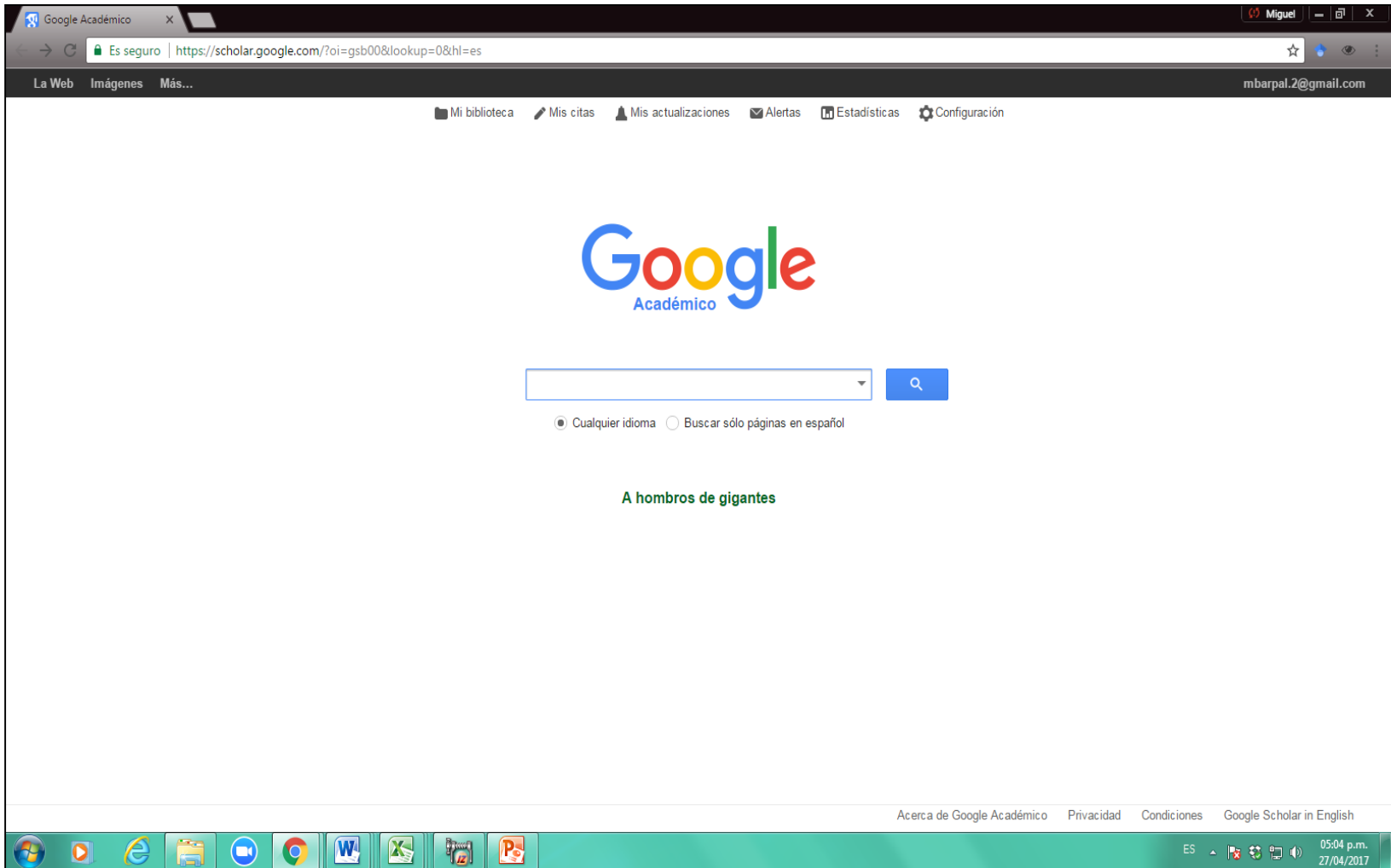
ALGUNAS CONSIDERACIONES ACERCA DE LA CIENCIA

- La ciencia es un bien público.
- La división Norte-Sur tiene implicancias para la forma cómo se produce, implementa y comunica la ciencia.
- Los investigadores tenemos intereses.
- Se aprende a investigar haciendo investigación.
- Rol docente y rol investigador: ¿Qué piden las universidades?

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ENCONTRAR: GOOGLE ACADÉMICO

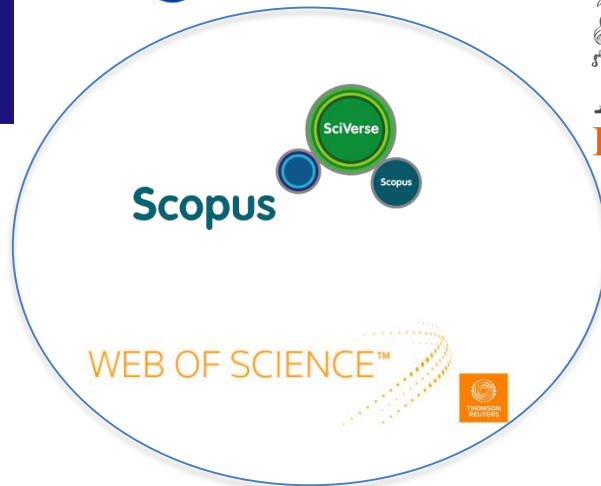


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FICHA PARA LA RECOLECCIÓN DE DATOS EN GOOGLE ACADÉMICO	
Título	
Autor(es)	
Tipo de documento	
¿Qué comunica? Contextualizar el escenario	

ENCONTRAR: BASES DE DATOS



ENCONTRAR: SCIELO



The screenshot displays the SciELO website interface. At the top, the SciELO logo and the text "Scientific Electronic Library Online" are visible. The browser address bar shows "www.scielo.org/php/index.php?lang=en".

Navigation and Search:

- Buscar artículo:** Search method: "integrado", search criteria: "Entre con una o más palabras", location: "Regional".
- Explorar revistas:** Search by journal title, alphabetical list (A-Z), and by topic (e.g., Ciencias agrícolas, Ciencias Sociales Aplicadas).
- SciELO en los números:** Statistics: 1,249 Revistas, 39,651 Temas, 573,525 artículos, 13,005,080 citas.

Left Sidebar (Red SciELO):

- Colecciones de libros:** Brazil.
- Colecciones de revistas:** Argentina, Bolivia, Brasil, Chile, Colombia, Costa Rica, Cuba, España, México, Perú, Portugal, Sudáfrica, Uruguay, Venezuela, Salud pública.
- en desarrollo:** Paraguay.
- interrumpido:** Brasil Proceedings, Ciencias Sociales, West Indian Medical Journal.
- difusión científica:** Ciência e Cultura.

Right Sidebar:

- Blog:** SciELO in Perspective.
- Gorjeo:** Twitter feed with a tweet about RBPI (Revista Brasileira de Política Internacional) and a news announcement about its internationalization.
- Captura de pantalla agregada:** A notification at the bottom right indicating a screenshot was added to the user's Dropbox.

ENCONTRAR: REDALYC



The screenshot shows the homepage of the Redalyc website. At the top left is the logo 'UAEM redalyc.org'. To the right, it says 'Sistema de Información Científica Redalyc' and 'Red de Revistas Científicas de América Latina y el Caribe, España y Portugal'. Below this are social media links for 'English', 'Seguir', 'Tweet', and 'Me gusta 38.076'. A red banner in the middle contains the statistics: '1199 revistas científicas | 41 754 fascículos | 538 777 artículos a texto completo'. Below the banner is a search bar with a dropdown menu set to 'Artículos' and radio buttons for 'Todo', 'CSyH', and 'CNYE'. There is also a 'Búsqueda avanzada' link. The main content area features five icons with corresponding text: 'XML-JATS' (with a 'NUEVO' tag), 'Colecciones de revistas', 'Indicadores científicos', 'AutoresRedalyc', and 'Productos editoriales'. At the bottom, there are three promotional banners: one for 'editores', one for 'Si eres editor de una revista Redalyc y atendiste el curso de certificación en XML-JATS solicita tu cuenta de acceso', and one for a book.

UAEM redalyc.org

Sistema de Información Científica Redalyc
Red de Revistas Científicas de América Latina y el Caribe, España y Portugal

English Seguir Tweet Me gusta 38.076

1199 revistas científicas | 41 754 fascículos | 538 777 artículos a texto completo

Artículos

Todo CSyH CNYE Búsqueda avanzada

NUEVO
XML-JATS
Revistas con XML-JATS y formatos enriquecidos de lectura, recuperación y descarga.

Colecciones de revistas
Cientos de revistas científicas arbitradas de 22 países de Iberoamérica indizadas en redalyc.

Indicadores científicos
Una mirada alternativa a la medición científica de instituciones y países.

AutoresRedalyc
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Productos editoriales
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editores

Si eres editor de una revista Redalyc y atendiste el curso de certificación en XML-JATS solicita tu cuenta de acceso

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abierto

LEER: ALGUNAS CONSIDERACIONES



- **I M R y D.** Donde, **I** es Introducción, **M** es Método, **R** es Resultados y **D** es Discusión.
- Una investigación tiene que considerar investigaciones previas desarrolladas. ¿Qué tipo de información requiero para otro documento académico?

Scientia Horticulturae 197 (2015) 573–578

Contents lists available at ScienceDirect

Scientia Horticulturae

journal homepage: www.elsevier.com/locate/scihorti

In vitro phytotoxicity of culture filtrates of *Fusarium oxysporum* f. sp. *vanillae* in *Vanilla planifolia* Jacks

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Culture filtrate
Root and stem rot in Vanilla

ABSTRACT

The fungus *Fusarium oxysporum* f. sp. *vanillae* is the cause of stem and root rot in *Vanilla planifolia*, the most devastating disease of this crop. As part of a biotechnological breeding program to obtain vanilla genotypes resistant to this pathogen, we evaluate here the phytotoxic effect of culture filtrates of *F. oxysporum* f. sp. *vanillae* during the multiplication and rooting stages. The drastic decrease in the survival percentages of explants, denotes that only the H3 strain has phytotoxic effects in the two phases (multiplication and rooting) *in vitro* culture of *V. planifolia*. The strain H3 produced the highest level of fusaric acid (FA). During the multiplication phase and rooting, the FA level was inversely correlated with the survival of shoots. This study contributes to future programs of *in vitro* selection of vanilla genotypes resistant to this pathogen.

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1. Introduction

Vanilla (*Vanilla planifolia* Jacks.) is the only orchid with edible fruits that is cultivated commercially for its pods, which are extracted to produce one of the world's most popular flavoring compounds, vanillin (Kalimathu et al., 2005). This species has a reduced genetic variability that makes it susceptible to many diseases, including stem and root rot caused by *Fusarium oxysporum* f. sp. *vanillae* (Pinaris et al., 2010).

This soil-borne fungus can survive long periods in the soil and can infect vanilla plants soon after they are planted in infested soil, thereby reducing growth and productivity of the crop (Pinaris et al., 2010). Because resistant genotypes and effective methods to control the disease are lacking, this pathogen continues to cause large economic losses in countries such as China (Badgcommane et al., 2007), Colombia (Cardona et al., 2012), Indonesia (Pinaris et al., 2010), Madagascar (J.M. Bentosa, personal communication), Puerto Rico (Ploetz, 2005) and Mexico (Herasández-Herández, 2011).

Plant tissue culture (PTC) has become a viable option for the *in vitro* selection of plants that are tolerant or resistant to biotic stresses (Sharma et al., 2010; Silva et al., 2012; Mahanta et al., 2011) and abiotic (Lebeda and Svobová, 2010; Sorokh et al., 2011). Plants can be selected for desirable characteristics at different stages of development reducing the number of selection cycles required by other breeding programs (Ravikumar et al., 2007; Lebeda and Svobová, 2010).

During the *in vitro* selection for disease resistance in plants, explants must be subjected to one or more agents that exert selection pressure on cells or buds during their growing stages. These agents can be of biotic origin (cells of a pathogen) or (abiotic heavy metals, salts, herbicides, phytotoxins, culture filtrates), and play an essential role in the pathogenic process (Lebeda and Svobová, 2010).

A commonly used agent to select genotypes resistant to pathogens is the filtrate from a liquid culture of the pathogen because many fungi produce phytotoxins that disrupt functions or kill the host cells (Viv et al., 2008). For this reason, screening assays typically involve a prior assessment of the phytotoxicity of a fungal culture (Bisatti and Ingram, 1991; Lebeda and Svobová, 2010).

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LEER: ARTÍCULOS CIENTÍFICOS



FICHA PARA LA LECTURA DE ARTÍCULOS CIENTÍFICOS

Título	
Autor(es)	
Objetivo(s)	
Método	
Resultados	
Conclusiones	

REDACTAR: ALGUNAS CONSIDERACIONES

- La redacción varía en función del documento académico o científico que se elabore (tesis, monografía, ensayo, artículo científico, carta al editor, reseña...).
- Antes de redactar, primero se requiere leer.
- Elaborar un «esqueleto» con los puntos a tratar. No pierda de vista el objetivo.
- Cuando se tenga todos los elementos encajados, «apriete».
- Revisión crítica por pares o expertos.
- Si estás trabajando un documento en función a un estilo de redacción, aprenda «reglas básicas»

REDACTAR: ESTILO APA

- Diferencias entre citas, referencias, bibliografía y literatura científica.
- Principio de correspondencia CITA – REFERENCIA.
- Tipos de citas.
- Un solo autor, dos autores, tres autores...
- Cita de cita (es preferible evitarlo).
- Tablas y figuras.
- Algunos consideraciones para las referencias. DOI.

REDACTAR: JAMOVI



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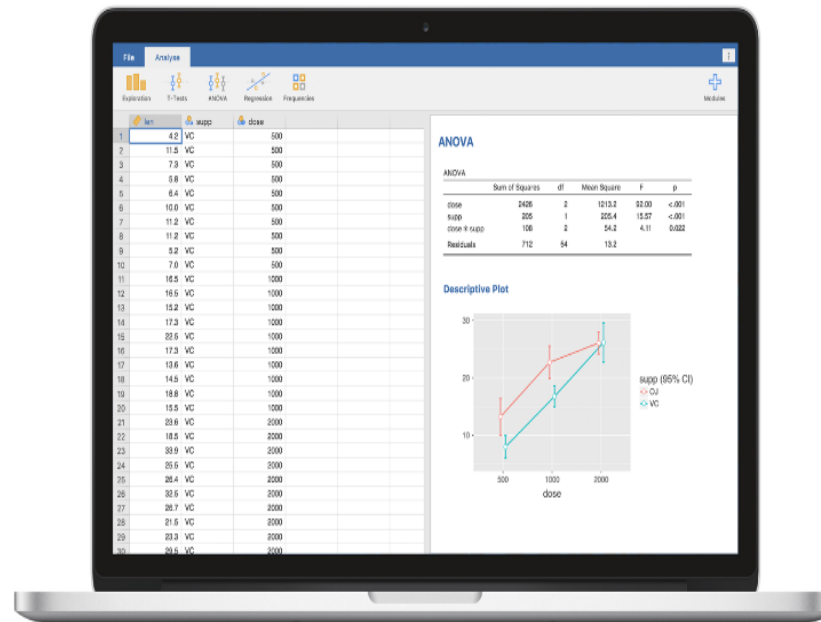


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software libre y abierto para cerrar la brecha entre el investigador y estadístico

REDACTAR: R



C:/Users/pat/presentations3/Var_ES - RStudio

File Edit Code View Plots Session Project Build Tools Help

Go to file/function

script1.R x vares_Funs.R x script2.R x diy_Funs.R x script3.R x histVaR_Funs.R x

```
43 # 15788
44 port50var <- VaR.sim(port50histret, value=1e7)
45
46 port50enve12000 <- port50var * spxgarvol[seq(to=ddat,
47   length=2000)] / spxgarvol[ddat]
48 plot(density(port50enve12000/1e6))
49
50 port50enve13000 <- port50var * spxgarvol[seq(to=ddat,
51   length=3000)] / spxgarvol[ddat]
52
53 port50enve1all <- port50var * spxgarvol[1:ddat] /
54   spxgarvol[ddat]
55
56
57
```

50:1 (Top Level) R Script

Workspace History

Import Dataset

Data	
fakesim	1000x10 double matrix
fakesimcum	1000x10 double matrix
fmat	3x4 integer matrix
jjr	8x2 double matrix
port50boot	10000x2 double matrix
port50histret	500x1 double matrix
rp50ret	1547x10000 double matrix
rp50sd250	1297x10000 double matrix
rp50sd250.norm1d05	1297x10000 logical matrix
rp50sd250.orig	1298x10000 double matrix

Files Plots Packages Help

Zoom Export Clear All

density.default(x = port50enve12000/1e+06)

Density

N = 2000 Bandwidth = 0.03093

Attaching package: 'zoo'

The following object(s) are masked from 'package:base':

- as.Date, as.Date.numeric

Package PerformanceAnalytics (1.0.4.4) loaded.
Econometric tools for performance and risk analysis.
(c) 2004-2012 Peter Carl, Brian G. Peterson, Kris Boudt, Eric Zivot.
License: GPL
<http://r-forge.r-project.org/projects/returnanalytics/>

[Workspace loaded from C:/Users/pat/presentations3/Var_ES/.RData]

Loading required package: rugarch
Loading required package: Rcpp
Loading required package: RcppArmadillo
Loading required package: numDeriv
Loading required package: chron
Loading required package: Rsolnp
Loading required package: truncnorm
Package Rsolnp (1.12) loaded. To cite, see citation("Rsolnp")

Package rugarch (1.0-9) loaded. To cite, see citation("rugarch")

```
> plot(density(port50enve12000/1e6))
>
```

REDACTAR: JASP

The image shows a composite graphic. On the left is a portion of the JASP website. On the right is a simulated Mac OS X desktop window titled 'JASP'.

JASP
A Fresh Way to Do Statistics

HOME ABOUT W

Download

JASP 0.7.1

Released 5th August, 2015

Windows

- [Windows XP and above](#)

Mac OS X

The simulated desktop window shows a desktop with two icons: 'JASP' (represented by a blue checkmark icon) and 'Applications' (represented by a blue folder icon with a white 'A'). The window title bar includes standard Mac OS X window controls (red, yellow, green buttons) and the title 'JASP'. A dock at the bottom of the window also shows a 'JASP' icon.

¡GRACIAS!

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