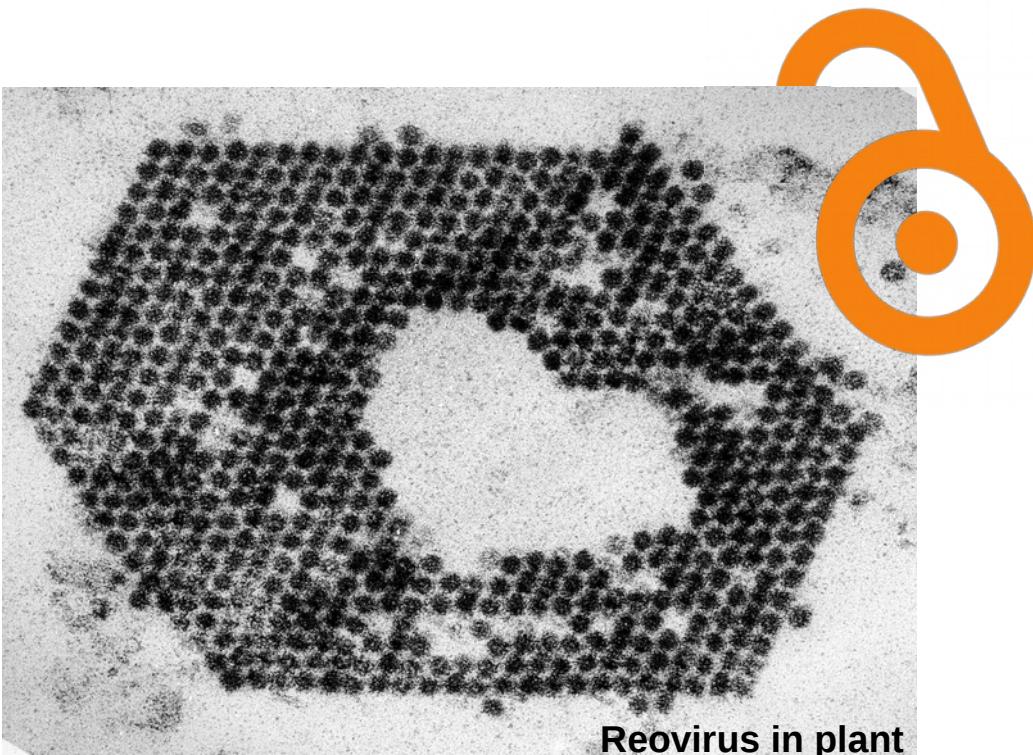


Mio, tuo, nostro? Un repository per condividere i dati della ricerca sui virus delle piante

Simona Abbà

Istituto per la Protezione Sostenibile delle Piante (IPSP)
Consiglio Nazionale delle Ricerche (CNR)



Reovirus in plant

Repository? Sì, grazie!
La realtà del Digital Cultural Heritage
Torino, 23 novembre 2016



How the idea was born

INTRODUCTION



Piero
Caciagli
(IPSP)



Marta
Vallino
(IPSP)



Simona
Abbà
(IPSP)



Anna
Perin
(IRCrES)



Giancarlo
Birello
(IRCrES)

WHO?

A researcher about to retire wanting to preserve the scientific heritage of the institute before leaving

Two newly hired researchers struck by the value of the submerged research data of the institute

An expert librarian and an enthusiastic informatics engineer already working on BESS



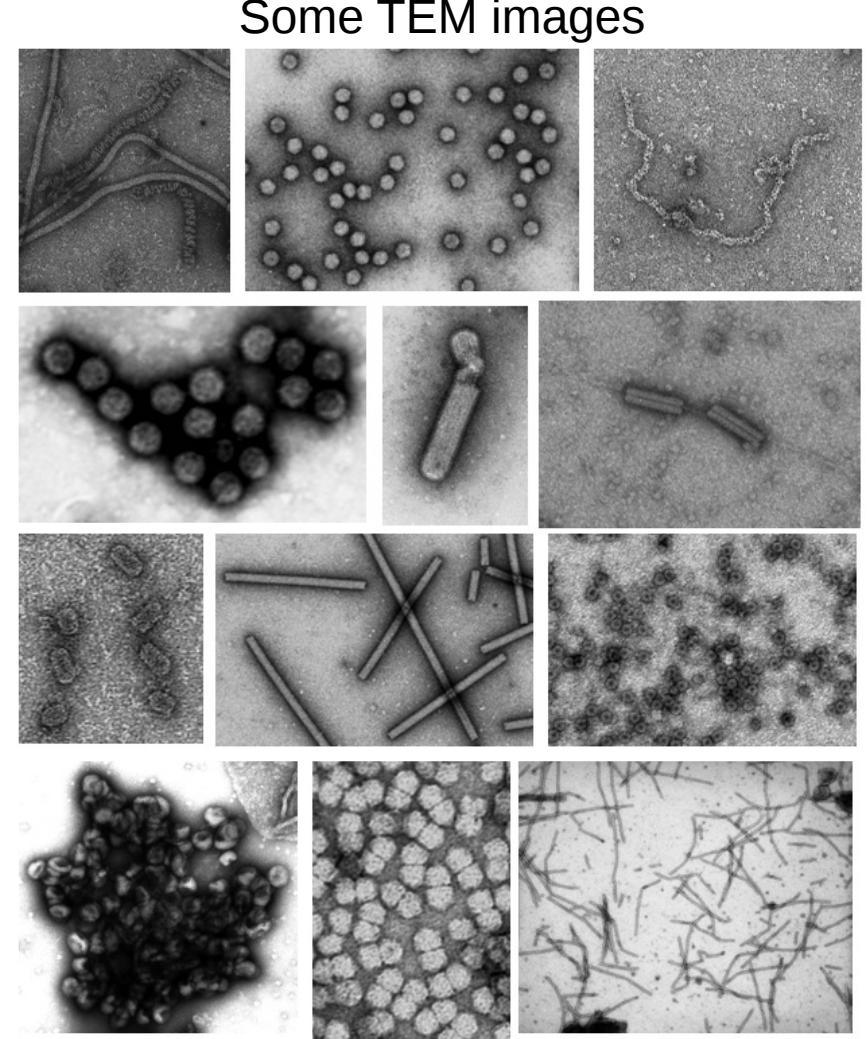
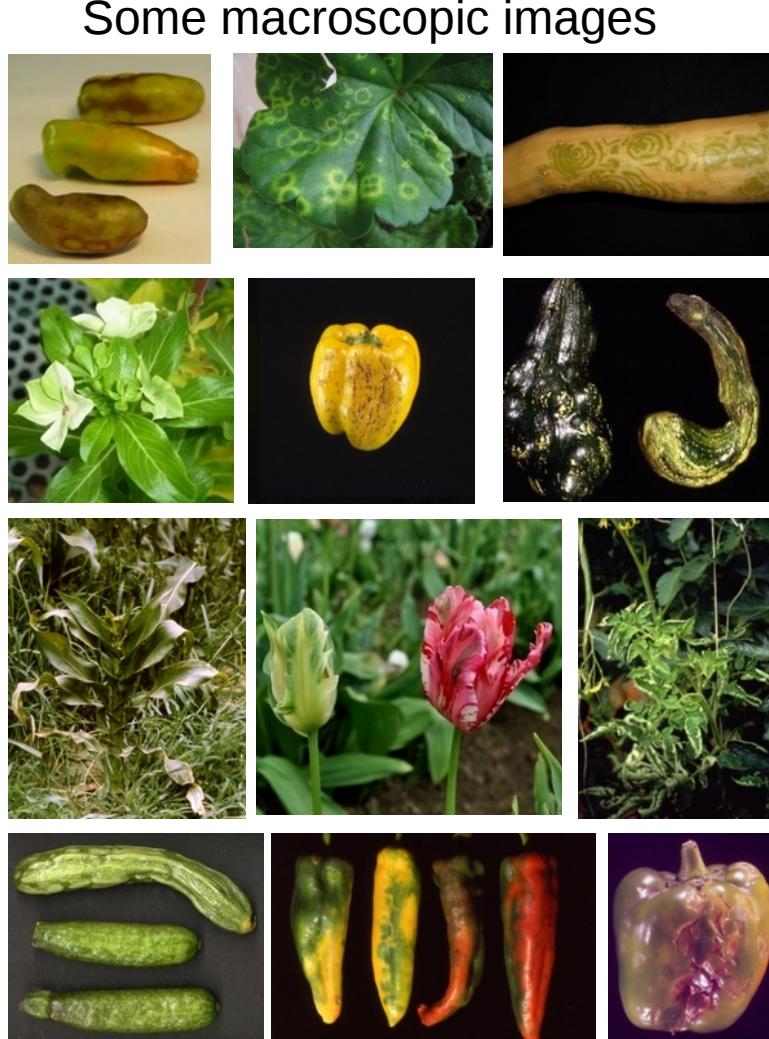
The scientific heritage in figures

- (more than) 50 years of research about virus and virus-like organisms
- 7,000 glass plates
- 33,000 film negatives
- 12,000 B/W prints
- 40,000 slides B/W & colour
- nearly 1,000 texts (grey literature: congress proceedings, notebooks, reports)



The scientific heritage

INTRODUCTION



How the idea was born

WHY?

Philological reason

- Recovery
- Preservation of the IPSP historical and scientific heritage about plant viruses
- Dissemination

Scientific reason

“Because you never know how scientific data can be re-interpreted and re-use in 10/20 years with new techniques and knowledge” Piero Caciagli

The V2P2 project



Named after two former CNR Institutes:
V2 → Istituto di Virologia Vegetale
P2 → Istituto per la Protezione delle Piante
now merged in IPSP

The novelty

The contents:

- the first open access repository about research data in Italy, at least in the field of life science
- showcases heterogeneous research data, not only articles

The e-infrastructure:

- it's an open source repository, not a dataset or a database!

interoperability and easy data mining

linked data

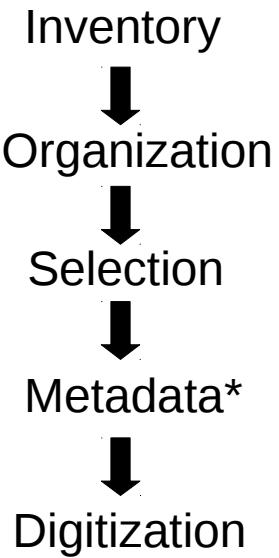
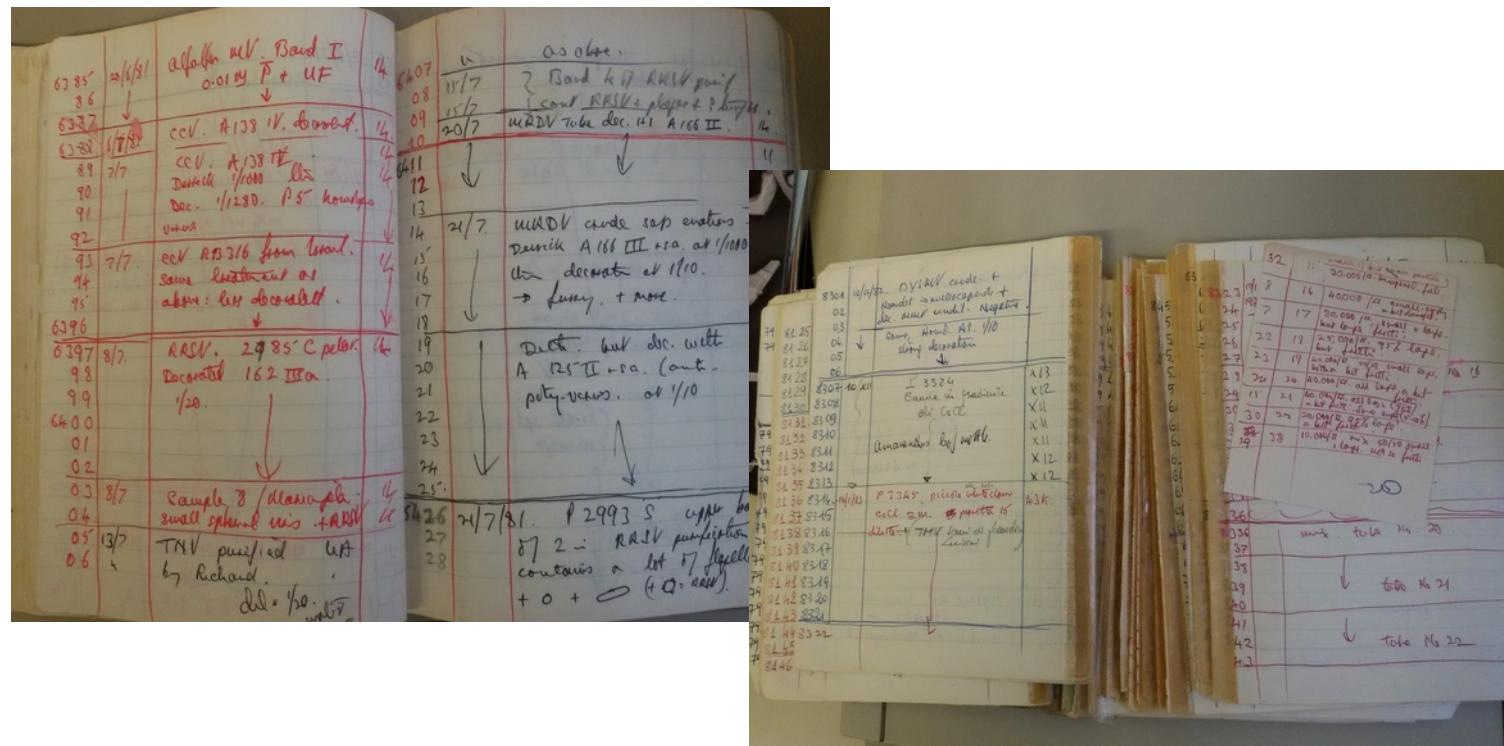
semantic web



Workflow for contents

Technical issues:

- Almost all texts and images in non-digitized formats
- Data generated by many researchers, most of them do not work anymore
- Metadata in hand-written notebooks



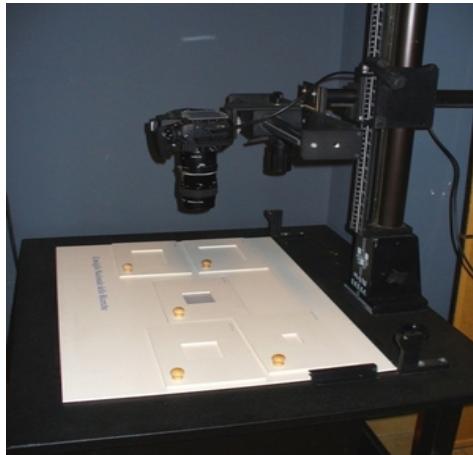
* extremely time-consuming

Funding

Call MIUR “Bando divulgazione 2012”

140,000 euros budgeted BUT only 20,000 euros granted!

Images



Nikon D800E with Micro-Nikkor 55mm f/2.8 lens

Texts



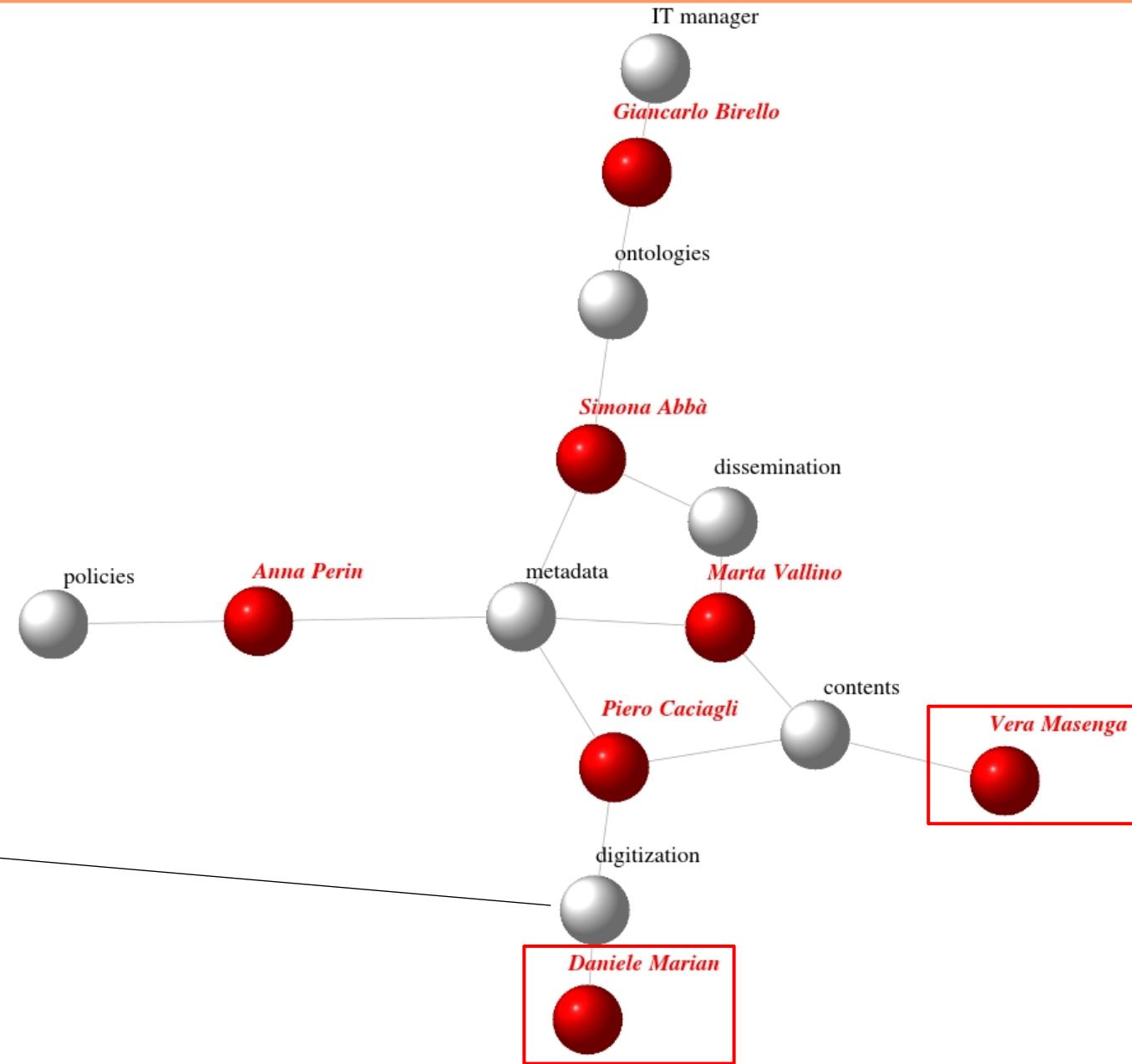
Zeta Bookscanner (Zeutschel)

People & tasks

METHODS



(In 2015 Agreement IRES –
CNR Turin Research Area)



Hands-on



V2P2 Project

Digitizing, preserving, searching, exploiting, sharing research data on plant viruses

[Home](#) [The project](#) [Policies](#)

[Home](#) » [V2P2 Repository](#) » [Images](#)

Search

Search Term

[search](#)

Advanced search

Field

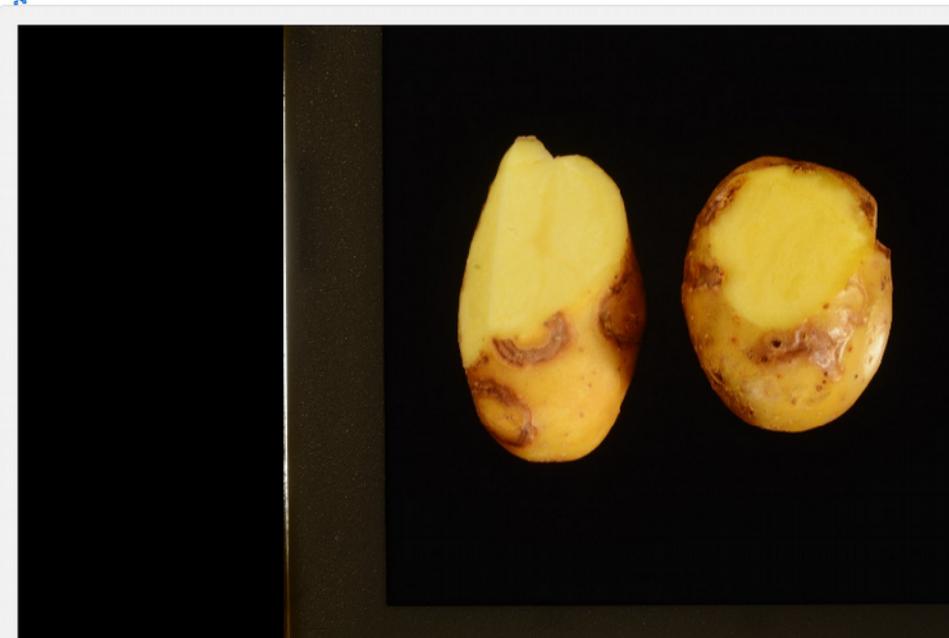
Search terms

+

[Search](#)

6680 Items in 10 Collections

PVYn symptoms on potato, case n.Pa20



Description

Potato virus Y (necrotic strain) symptoms on potato (*Solanum tuberosum* cv. *Hermes*). Potatoes show necrotic rings. Sample collected in an agricultural company in Castelnuovo Scrivia (Italy) on 1997-09-04

In collections

- [Images](#)

[Trash](#)

Repository? Sì, grazie! La realtà del Digital Cultural Heritage
Torino, 23 novembre 2016

Hands-on

Description

Potato virus Y (necrotic strain) symptoms on potato (*Solanum tuberosum* cv. Hermes). Potatoes show necrotic rings. Sample collected in an agricultural company in Castelnuovo Scrivia (Italy) on 1997-09-04

In collections

- [Images](#)

Details

Title	PVYn symptoms on potato, case n.Pa20
Creator	IPSP-CNR (former IFA)
Subject	potato, potato virus Y, necrotic strain, <i>Solanum tuberosum</i> , picture n.7354
Description	Potato virus Y (necrotic strain) symptoms on potato (<i>Solanum tuberosum</i> cv. Hermes). Potatoes show necrotic rings. Sample collected in an agricultural company in Castelnuovo Scrivia (Italy) on 1997-09-04
Publisher	
Contributor	
Date	1997-10-30
Type	Image
Format	60x60 mm, slide, colour
Identifier	v2p2image:126
Source	
Language	
Relation	
Coverage	
Rights	

Hands-on

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Search

Search Term

[search](#)

Advanced search

Field [Title](#)

Search terms

+

[Search](#)

6680 Items in 10 Collections

ZYMV symptoms on zucchini case n.Z283/6



Description

Zucchini yellow mosaic virus symptoms on a zucchini (*Cucurbita pepo* cv. President) fruit. The fruit is twisted and deformed by raised protuberances. Sample collected in an agricultural company in the Lazio region (Italy) on 1997-12-12

In collections

- [Images](#)

Details

Repository? Sì, grazie! La realtà del Digital Cultural Heritage
Torino, 23 novembre 2016

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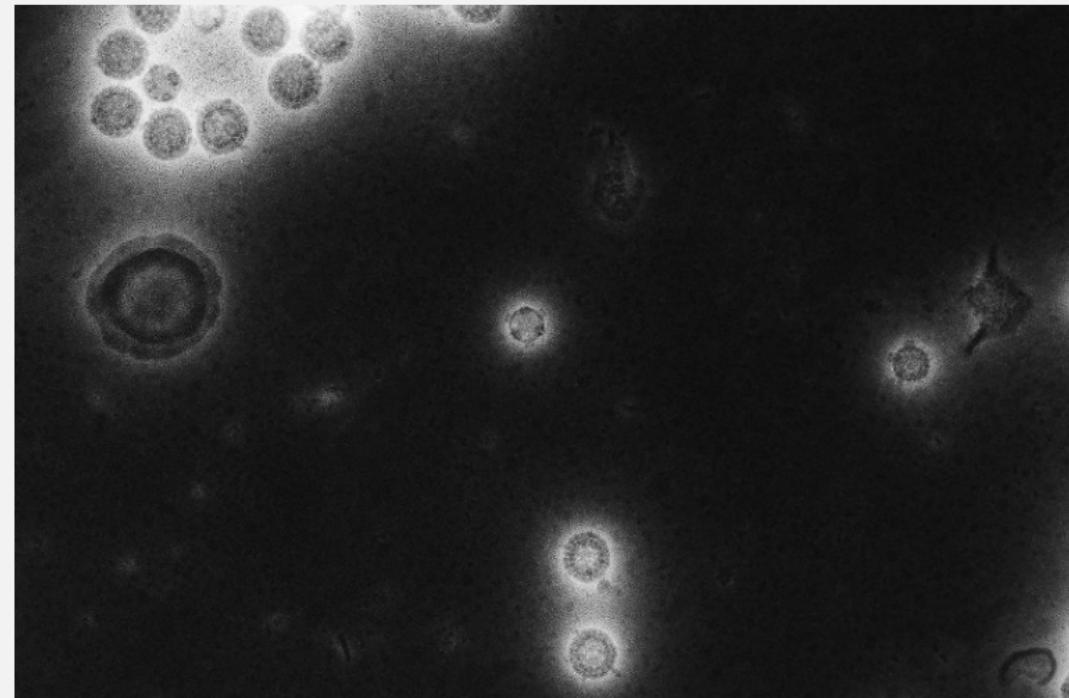
Search terms

+

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6680 Items in 10 Collections

MRDV virions n.4997



Description

MRDV virions, negative stain with uranyl acetate, magnification 14000x, complete double-shelled particles with A spikes, double-shelled particles without spikes, subviral particles (SVP) with B spikes, negative n.4997

In collections

- [Images](#)

Details

Repository? Sì, grazie! La realtà del Digital Cultural Heritage
Torino, 23 novembre 2016

Hands-on

Search

Search Term maize

search

Advanced search

Field Title

Search terms

+
Search

6680 Items in 10 Collections

3rd Conference on Virus Diseases of Gramineae in Europe

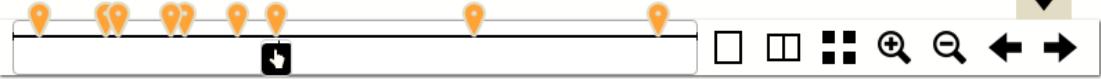
[View](#) [Pages](#)

maize   **TEXT**  

SOME PROPERTIES OF RYEGRASS CRYPTIC VIRUS
Burton Jaisson and Robert G. Milne
Laboratorio di Fitovirologia applicata
tel. 010
Via O. Vigliani 104, 10135 Turin, Italy

Ryegrass cryptic virus (RCV), originally called ryegrass spherical virus (Plumb & Misari, *Rothamsted Ann. Rep.*, for 1973, Part 2, p. 137, 1974) was isolated in Italian ryegrass (*Lolium multiflorum*) var. 822, in a mixed infection with oat sterile dwarf virus (OSDV). RCV was purified from infected leaves by clarification with chloroform, differential centrifugation, and density gradient centrifugation in preformed Cs₂SO₄ density gradients. An antiserum to RCV was prepared with a hemagglutination titre of 1/1024 in gel diffusion tests. The titre against OSDV subvirial particles was 1/4 in immunoelectron microscopic 'decoration' tests. RCV was found to be serologically unrelated to bromo rosette, cocksfoot mild rosette, cocksfoot nettle, gynandra rosette, hollow transitory nettle, red chlorotic nettle, scolymus streak, punicum rosette, phleum nettle and St. Augustine rhizome viruses (antisera all from Dr. H. L. Pfeil, Braunschweig), to beet cryptic virus (antisera from Dr. D. A. Govier, Rothamsted) and to oxenurus cryptic virus (our antisera). By normal electron microscopy the virus was rarely detected in crude sap, but after application of the Derrick immunosorption technique, around 20,000 virus particles became visible per 400nmah grid square. When negatively stained in uranyl acetate, RCV particles appeared isometric, with a circular contour and a mean diameter of 29 nm; the fine structure appeared granular, without visible subunits. In thin sections, RCV particles were seen in the cytoplasm, sometimes in ordered arrays, but they were not associated with any particular organelle, and no specific inclusions were induced.

THURSDAY
29th MAY


Description

Abstracts of Papers and Posters and List of Participants at the 3rd Conference on Virus Diseases of Gramineae in Europe, held at Rothamsted Experimental Station, (Harpenden, U.K.) from 28 to 30 May, 1980

In collections

Repository? Sì, grazie! La realtà del Digital Cultural Heritage
Torino, 23 novembre 2016

Achievements till now

- ✓ The repository now contains nearly 6700 objects (6.6%)
- ✓ operational guidelines to fill in metadata (article in EPPO Bulletin*)
- ✓ technical guidelines about how to build up a repository from scratch in V2P2 dev zone (<http://v2p2dev.to.cnr.it/doku.php>)

Impacts

Societal

Recovery of submerged and unused research data, enhancement and dissemination of the scientific heritage

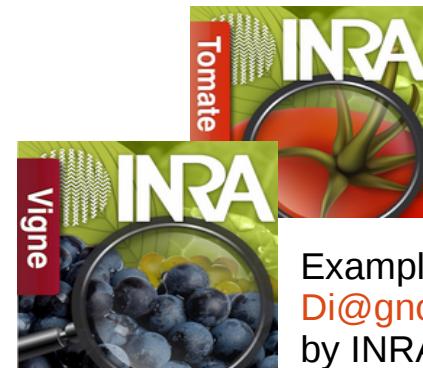
Scientific

Atlas of

- virus symptoms on plants
- TEM images of plant virus

Technological

Smartphone apps for the identification of plant disease symptoms



Example:
[Di@gnoplant](#) apps
by INRA Bordeaux

Perspectives

CONCLUSIONS

Improve the structure of the repository
(linked data, OAI-PMH, download, etc...)



add more objects

V2P2: how about new research data?



apply for new funding opportunities!



Marina
Ciuffo
Caterina
Perrone
Andrea
Delliri

The Islandora community

Don Moses
(Canada)

Mark Leggott
(Canada)

Diego Pino Navarro
(Chile)

The open-source community:



Funding: MIUR (Ministero dell'Istruzione, dell'Università e della Ricerca),
Progetti annuali (L.6/2000) D.D. 369/Ric. del 26/06/2012.

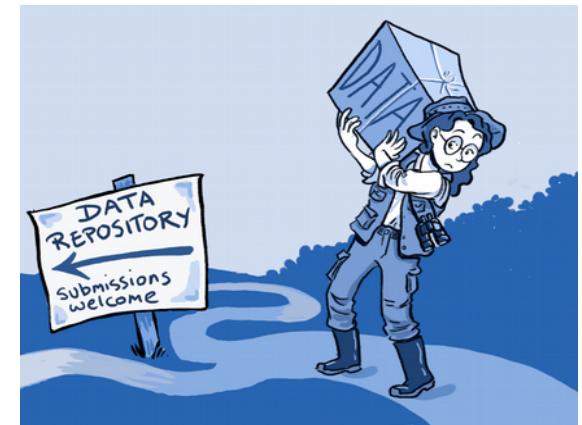


Thank you for your attention!

Credit: AJC1
<https://www.flickr.com/photos/ajc1/5354019581/>

Simona Abbà

simona.abba@ipsp.cnr.it



Credit: Roche DG et al., 2014 PLoS Biology
DOI: 10.1371/journal.pbio.1001779

