Modern Achievements in Population, Evolutionary, and Ecological Genetics : **International Symposium**, Vladivostok – Vostok Marine Biological Station, June 19–24, 2011 : Program & Abstracts. – Vladivostok, 2011. –51 p. – Engl.
ISBN 978-5-7442-1512-5

HELD BY:
Far Eastern Branch of Russian Academy of Sciences,
A.V. Zhirmunsky Institute of Marine Biology FEB RAS,
Institute of Biology and Soil Science FEB RAS,
Far Eastern Federal University,
Administration of Vladivostok City,
Vladivostok City Duma (Council),
Administration of Nakhodka City District,
Vladivostok Public Foundation for Development of Genetics,

SPONSORS:
Nakhodka City Territorial Ecological Foundation,
Argo Company, Autovladservice Company

Editor Yuri Ph. Kartavtsev

Современные достижения в популяционной, эволюционной и экологической генетике : Международный симпозиум, Владивосток – Морская биологическая станция "Восток", 19–24 июня 2011 : Программа и тезисы докладов. – Владивосток, 2011. –51 с. – Англ.

ОРГАНИЗАТОРЫ:
Дальневосточное отделение РАН,
Институт биологии моря им. А.В. Жирмунского ДВО РАН,
Биолого-почвенный институт ДВО РАН,
Дальневосточный федеральный университет,
Администрация г. Владивостока,
Дума г. Владивостока,
Администрация г. Находка,
Владивостокский общественный фонд развития генетики

ФИНАНСОВАЯ ПОДДЕРЖКА:
Дальневосточное отделение РАН,
Территориальный экологический фонд г. Находка,
ООО «Арго», ООО «Автовладсервис»

Ответственный редактор Ю.Ф. Картавцев

ISBN 978-5-7442-1512-5

INVESTIGATION OF POTATO SPINDLE TUBER VIROID (PSTV) IN THE *SOLANUM TUBEROSUM* L. COLLECTION OF THE INSTITUTE OF BIOLOGY AND SOIL SCIENCES FEB RAS

Irina V. Gafitskaya

Institute of Biology and Soil Science, Far East Department of Russian Academy of Sciences, Vladivostok, Russia

Potato spindle tuber viroid (PSTVd) is the causative agent of one of the most serious diseases. It is a low-molecular, ring RNA without protein shell. PSTVd low concentration in plants is the main difficulty in its diagnostics. High temperature stimulates PSTVd proliferation and symptoms while low temperatures supports infection at a certain low level, which makes some difficulties in the viroid diagnostics (Sanger, 1982).

The main problem of growing potatoes is degeneration of sorts. While potato recovering from viruses by the apical meristem PSTVd properties allow to be conserved and spread (Mozhaeva et al., 1996). Control over PSTVd and other pathogens is required, otherwise you may experience losses due to the large-scale propagation *in vitro*. Therefore, it is especially important to use highly sensitive methods for the viroid diagnosis. The Institute of Biology and Soil Science maintains a collection of 36 recovered from viruses potato varieties (sorts) deposited *in vitro*. Analysis of the collection and assessment of PSTVd infection is the purpose of this study.

The collection is contained at 23 ± 1 °C. To stimulate PSTVd reproduction in potatoes vitro plants are cultured at high (up to 27 °C) temperature; to serve PSTVd at a stable level vitro plants are cultured at low (18-19 °C) temperature. In total 32 samples were analyzed by polymerase chain reaction (PCR) in three repetitions.

At low temperatures PSTVd was detected in a small portion of samples where perhaps the viroid accumulation was increased. At the same time, increasing of temperature gave the positive result in some samples where previously the viroid was not detected. As a result the collection has been cleared from plant viroid infection. Data obtained are the basis for the collection monitoring and development the methods for clearing the initial material for seed production from PSTVd.