EUROPEAN COMMISSION
HEALTH & CONSUMERS DIRECTORATE-GENERAL

Directorate E – Safety of the food chain
Unit E.3 - Chemicals, contaminants, pesticides

FINAL

Review report for the active substance ***Pythium oligandrum* M1**

Finalised in the Standing Committee on the Food Chain and Animal Health at its meeting on 11 July 2008
in view of the inclusion of *Pythium oligandrum* M1 in Annex I of Directive 91/414/EEC

1. Procedure followed for the re-evaluation process

This review report has been established as a result of the re-evaluation of *Pythium oligandrum* M1, made in the context of the work programme for review of existing active substances provided for in Article 8(2) of Directive 91/414/EEC concerning the placing of plant protection products on the market, with a view to the possible inclusion of this substance in Annex I to the Directive.

Commission Regulation (EC) No 1112/2002([1]) laying down the detailed rules for the implementation of the fourth stage of the programme of work referred to in Article 8(2) of Council Directive 91/414/EEC, and Regulation (EC) No 2229/2004([2]) have laid down the detailed rules on the procedure according to which the re-evaluation has to be carried out. *Pythium oligandrum* M1 is one of the existing active substances covered by this Regulation.

In accordance with the provisions of Article 4 of Regulation (EC) No 2229/2004, Biopreparáty Co. Ltd. notified to the Commission of their wish to secure the inclusion of the active substance *Pythium oligandrum* M1 in Annex I to the Directive.

In Annex I to Regulation (EC) No 2229/2004 the Commission, designated Sweden as rapporteur Member State to carry out the assessment of *Pythium oligandrum* M1 on the basis of the dossiers submitted by the notifier. In Article 12 of Regulation (EC) No 2229/2004 the Commission specified furthermore that the deadline for the notifier with regard to the submission to the rapporteur Member States of the dossiers required, as well as for other parties with regard to further technical and scientific information was 30 November 2005.

[1] OJ No L 168, 27.06.2002, p.14.

[2] OJ No L 379, 24.12.2004, p.13. Regulation as last amended by Regulation (EC) No 1095/2007 (OJ L 246, 21.09.2007, p. 19).

Biopreparáty Co. Ltd. submitted by the deadline a dossier to the rapporteur Member State which did not contain substantial data gaps, taking into account the supported uses. Therefore Biopreparáty Co. Ltd. was considered to be the sole data submitter.

In accordance with the provisions of *Article 22(1)* of Regulation (EC) No 2229/2004, Sweden submitted in June 2007 to the EFSA the report of their examination, hereafter referred to as the draft assessment report, including, as required, a recommendation concerning the possible inclusion of *Pythium oligandrum* M1 in Annex I to the Directive. Moreover, in accordance with the provisions of Article 20(2) of Regulation (EC) 2229/2004, the Commission and the Member States received also the summary dossier on *Pythium oligandrum* M1 from the notifier.

In accordance with the provisions of Article 24 of Regulation (EC) No 2229/2004 as last amended by Regulation (EC) 1095/2007, the EFSA organised the consultation on the draft assessment report by all the Member States as well as by (notifier) being the sole data submitter, on 23 April 2008 by making it available.

In accordance with the provisions of Article 24a of Regulation 2229/2004 as last amended by Regulation (EC) 1095/2007 the Commission examined the draft assessment report, the recommendations by the rapporteur Member State and the comments received from other Member States in consultation with experts from a certain number of Member States.

In accordance with the provisions of Article 24b and Article 25 (1) a of Regulation (EC) No 2229/2004 as last amended by Regulation (EC) 1095/2007, the Commission referred on 11 July 2008 a draft review report to the Standing Committee on the Food Chain and Animal Health, for final examination. The draft review report was finalised in the meeting of the Standing Committee on 11 July 2008.

The present review report contains the conclusions of the final examination by the Standing Committee. Given the importance of the draft assessment report and of any comments and/or clarifications submitted, these documents are considered as background document of this review report and are part of it.

2. Purposes of this review report

This review report, including the background document appendices thereto, has been developed in support of the Directive **2008/113/EC**[3] concerning the inclusion of *Pythium oligandrum* M1 in Annex I to Directive 91/414/EEC. The Commission shall request the EFSA to deliver its view on the draft review report by 31 December 2010 at the latest. When the Member States decide on individual plant protection products containing *Pythium oligandrum* M1 they shall take into account this review report in accordance with the provisions of that Directive, and in particular the provisions of article 4(1) and the uniform principles laid down in Annex VI. However, when the EFSA has delivered its view on the draft review report, the Commission shall revise it.

This review report provides also for the evaluation required under Section A.2.(b) of the above mentioned uniform principles, as well as under several specific sections of part B of these principles. In these sections it is provided that Member States, in evaluating applications and granting authorisations, shall take into account the information concerning the active substance in Annex II of the directive, submitted for the purpose of inclusion of the active substance in Annex I, as well as the result of the evaluation of those data.

[3] Commission Directive 2008/113/EC (OJ L 330, 9.12.2008, p. 6)

In accordance with the provisions of Article 26 of Regulation (EC) No 2229/2004, Member States will keep available or make available this review report for consultation by any interested parties or will make it available to them on their specific request.

The information in this review report is, at least partly, based on information which is confidential and/or protected under the provisions of Directive 91/414/EEC. It is therefore recommended that this review report would not be accepted to support any registration outside the context of Directive 91/414/EEC, e.g. in third countries, for which the applicant has not demonstrated to have regulatory access to the information on which this review report is based.

3. Overall conclusion in the context of Directive 91/414/EEC

The overall conclusion from the draft assessment report, the recommendations by the rapporteur Member State and the result of the examination in accordance with the provisions of Article 24a of Regulation 2229/2004 is that there are clear indications that it may be expected that *Pythium oligandrum* M1 does not have any harmful effects on human or animal health or on groundwater or any unacceptable influence on the environment, as set out in Annex VI of Regulation (EC) 2229/2004 as last amended by Regulation (EC) 1095/2007.

These indications are however subject to compliance with the particular requirements in sections 4, 5, 6 and 7 of this report, as well as to the implementation of the provisions of Article 4(1) and the uniform principles laid down in Annex VI of Directive 91/414/EEC, for each *Pythium oligandrum* M1 containing plant protection product for which Member States will grant or review the authorisation.

Furthermore, these indications were reached within the framework of the uses which were proposed and supported by the main data submitter and mentioned in the list of uses supported by available data (attached as Appendix II to this review report).

Extension of the use pattern beyond those described above will require an evaluation at Member State level in order to establish whether the proposed extensions of use can satisfy the requirements of Article 4(1) and of the uniform principles laid down in Annex VI of Directive 91/414/EEC.

The review has concluded that there are acceptable exposure scenarios for consumers, operators, workers and bystanders which require however to be confirmed for each plant protection products in accordance with the relevant sections of the above-mentioned uniform principles and with risk mitigation measures applied.

It has also been concluded that under the proposed and supported conditions of use there are no unacceptable effects on the environment, as provided for in Article 4 (1) (b) (iv) and (v) of Directive 91/414/EEC, provided that certain conditions are taken into account as detailed in section 6 of this report.

4. Identity and biological properties

The main properties of *Pythium oligandrum* M1 are given in Appendix I.

It has been established that for the active substance notified by the main data submitter none of the manufacturing impurities considered are, on the basis of information currently available, of toxicological or environmental concern.

5. Endpoints and related information

In order to facilitate Member States, in granting or reviewing authorisations, to apply adequately the provisions of Article 4(1) of Directive 91/414/EEC and the uniform principles laid down in Annex VI of that Directive, the most important endpoints were identified during the re-evaluation process. These endpoints are listed in volume 1, page 40 of the DAR. The EFSA will deliver its view on this review report by 31 December 2010 at the latest.

6. Particular conditions to be taken into account on short term basis by Member States in relation to the granting of authorisations of plant protection products containing *Pythium oligandrum* M1

On the basis of the proposed and supported uses (as listed in Appendix II), the following particular issues have been identified as requiring particular and short term attention from all Member States, in the framework of any authorisations to be granted, varied or withdrawn, as appropriate:

– the operator safety (although there was no need to set an AOEL, as a general rule, microorganisms should be considered as potential sensitizers).

Conditions of use shall include risk mitigation measures, where appropriate.

7. List of studies to be generated

Further studies which were at this stage considered necessary were identified in the level 4 of the Draft Assessment Report.

8. Information on studies with claimed data protection

For information of any interested parties, the rapporteur Member State will keep available a document which gives information about the studies for which the main data submitter has claimed data protection and which during the re-evaluation process were considered as essential with a view to annex I inclusion. This information is only given to facilitate the operation of the provisions of Article 13 of Directive 91/414/EEC in the Member States. It is based on the best information available but it does not prejudice any rights or obligations of Member States or operators with regard to its uses in the implementation of the provisions of Article 13 of the Directive 91/414/EEC and neither does it commit the Commission.

9. Updating of this review report

The information in this report may require to be updated from time to time in order to take account of technical and scientific developments as well as of the results of the examination of any information referred to the Commission in the framework of Articles 7, 10 or 11 of Directive 91/414/EEC. Any such adaptation will be finalised in the Standing Committee on the Food

Chain and Animal Health, in connection with any amendment of the inclusion conditions for *Pythium oligandrum* M1 in Annex I of the Directive.

APPENDIX I

Identity and biological properties

Pythium oligandrum M1

Intended Uses:	Spraying of oil-seed rape in the field.
Known or new organism:	Existing active ingredient
GMO	No
Taxonomy:	Species: *Pythium oligandrum*; genus: *Pythium*; family: *Pythiaceae*; order: *Perensporales*; class: *Oomycetes*.
Species, subspecies, strain:	*Pythium oligandrum* M1
Identification / detection:	*Pythium oligandrum* is identified using microscopic taxonomic analysis of species-characteristic spiny-walled oospores and oogonia. This method cannot be used for identification at strain level, but is sufficient to distinguish *Pythium oligandrum* from other *Pythium* species, and most significantly *Pythium insidiosum*. Culture Collection No: ATCC 38472
Methods of analysis:	Identification and purity determination: A sample of the concentrated MCPA is homogenized in a small volume of distilled water and one drop of surfactant (Tween 80) is added. The mixture is diluted to an exact volume and homogenized. The oospores are counted in 144 large Bürker's chambers and the number of oospores per gram is then calculated.
Mode of action:	Mycoparasitism, mediated by intimate hyphal interactions; antibiosis, with alteration of the host hyphae prior to contact with the antagonist; enhancement of the plant's resistance to the pathogen; and competition in the soil for space and nutrients.

Life cycle:	*Pythium oligandrum* has two cycles of reproduction, one sexual and one asexual, with the sexual accounting for around 20 % of the total reproduction. In the asexual cycle, a multinucleate sporangium forms on the mycelium. The sporangium produces a short exit tube and when the tip of the tube breaks down, a vesicle forms where diploid zoospores differentiate and then are released. The zoospores are flagellated and after leaving the vesicle use their two flagella to move. They soon encyst and are able to stay in dormancy before establishing a new reproduction cycle. In the sexual cycle, the oogonium is fertilized by an antheridium, resulting in the creation of thick-walled, diploid oospores. These usually exhibit constitutive dormancy, requiring a postmaturation phase during which the thick oospore wall becomes thinner by digestion of its inner layers. This process can be hastened by keeping the spores in nutrient-poor conditions, at normal temperature and moisture levels. Then, after several weeks, the spores will germinate in response to environmental triggers such as common nutrients (sugars and amino acids) or volatile metabolites (e.g. acetaldehyde) released from germinating seeds, to produce either diploid hyphae or a sporangium that releases diploid zoospores. *Pythium oligandrum* differs from many other Oomycota species in that they characteristically develop oospores parthenogenetically, i.e. without a sexual process.
Host specificity:	*Pythium oligandrum* has been reported to parasitize on fungal species from the following genera: *Botrytis*, *Fusarium*, *Gaeumannomyces*, *Ophiostoma*, *Phialophora*, *Phoma*, *Phythopthora*, *Pseudocercosporella*, *Pythium*, *Sclerotinia* and *Verticillium*. The notifier claims that *P. oligandrum* also parasitizes *Alternaria* and *Sclerotium* and that it is likely that the same effect can be seen against most species within each genus.
Known opportunist:	No. Several *Pythium* species have been reported to cause disease in fish and plants. The only species in the genus that infects mammals is *Pythium insidiosum*, known to cause life-threatening infections in humans and animals. However, there are no reports of the disease in Europe; *P. insidiosum* lives in aquatic habitats in subtropical, tropical and temperate parts of the world. *P. insidiosum* differs from all known *Pythium* species by the septation of the main hyphae, as produced in particular on many agar media, and by the formation of conspicious, thick-walled fertilization tubes. It has filamentous, non-inflated sporangia, large antheridia and high optimum temperature with a peak growth rate at 37°C and inhibited growth at 40°C.

Toxin production:	*Pythium oligandrum* produces several substances that each plays a role in the organism's mode of action. These substances include oligandrin, ethylene, cell wall hydrolytic enzymes such as cellulases, chitinases, tryphtanime (TNH_2) and two types of cell wall protein fractions, D-type containing two major proteins with molecular mass of ~28 kDa, and S-type containing one major protein with molecular mass of ~27 kDa. None of these substances are considered to be of toxicological concern; however several of them seem to induce a resistance reaction in the plant including production of toxins. Information on inducible phytoalixins in *Brassica* has been requested. As the knowledge about the mode of action of *Pythium oligandrum* is still limited, it could be expected that additional metabolites are produced.
Resistance:	No information is available.
Resting stages:	Zoospores and oospores.
Production control:	The following control is performed on the input inoculum. 1 cm^2 of pure culture of *Pythium oligandrum* is put in cultivation bouillon, cultivated for 3-4 days at room temperature and spread on non-selective agar medium. In case of contamination, the culture of *P. oligandrum* excluded from the next technology steps. The laboratory batches are macroscopically observed each day of the fermentation process and contaminated batches are excluded from the production.

APPENDIX II

List of uses supported by available data

Pythium oligandrum M1

Crop and/or situation (a)	**Member State or Country**	**Product name**	**F G or I** (b)	**Pests or Group of pests controlled** (c)	**Formulation**		**Application**				**Application rate per treatment**			**PHI (days)** (l)	**Remarks:** (m)
					Type (d-f)	Conc. of as (i)	method kind (f-h)	growth stage & season (j)	number min max (k)	interval between applications (min)	kg as/hl min max	water l/ha min max	kg as/ha min max		
Oil seed rape		Polyversum	F	*Sclerotinia sclerotiorum, Leptoshaeria maculans*	WP	100-250 g/kg	Spraying	BBCH 13-15 (autumn) BBCH 31-34 (spring) BBCH 38-39 (spring)	2-3	14 days	2.5 – 3.3 g/hL; 2.5 x 10^6 – 6.3 x 107 cfu/hL	300-400	10-25 g/ha; 1 x 10^7 - 2.5 x 10^8 cfu/ha	0	-

Appendix II
List of uses supported by available data
14 May 2008

Remarks:

(a) For crops, the EU and Codex classifications (both) should be used; where relevant, the use situation should be described (*e.g.* fumigation of a structure)

(b) Outdoor or field use (F), glasshouse application (G) or indoor application (I)

(c) *e.g.* biting and suckling insects, soil born insects, foliar fungi, weeds

(d) *e.g.* wettable powder (WP), emulsifiable concentrate (EC), granule (GR)

(e) GCPF Codes - GIFAP Technical Monograph No 2, 1989

(f) All abbreviations used must be explained

(g) Method, *e.g.* high volume spraying, low volume spraying, spreading, dusting, drench

(h) Kind, *e.g.* overall, broadcast, aerial spraying, row, individual plant, between the plants - type of equipment used must be indicated

(i) g/kg or g/l

(j) Growth stage at last treatment (BBCH Monograph, Growth Stages of Plants, 1997, Blackwell, ISBN 3-8263-3152-4), including where relevant, information on season at time of application

(k) The minimum and maximum number of application possible under practical conditions of use must be provided

(l) PHI - minimum pre-harvest interval

(m) Remarks may include: Extent of use/economic importance/restrictions