

IPM-4-Citrus Final Meeting

Monday 19th December 2022

Les Laboratoires MEDIS, Nabeul. Tunisia





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IPM-4-Citrus Consortium Invited representatives from Tunisia, France and European community

Toulouse, 1 December 2022

Subject: IPM-4-CITRUS Final Meeting (19/12/2022, Nabeul, @Les Laboratoires MEDIS)

Ref: Call H2020-MSCA-RISE-2016 – EU project n°734921

Attachment: Flyer and Program (FM and Satellite session)

Dear Madam, Dear Sir,

On behalf of IPM-4-Citrus consortium and MEDIS Group, we are pleased to invite you to participate to final meeting of IPM-4-CITRUS project (https://www.ipm-4-citrus.insa-toulouse.fr/). This event will take place at Les Laboratoires MEDIS (Monday 19/12/2022) and will be associated with IDB2022 (Tuesday 20/12/2022) following attached program:

- ✓ on Monday 19th December 2022 from 9h00 up to 17h00 (Final Meeting, @Les Laboratoires MEDIS, Nabeul)
- on Tuesday 20th December 2022 from 9h30 up to 12h30 (satellite session IPM-4-Citrus, @IDB2022, Hammamet)

This final event will be the final milestone and the opportunity to gather consortium members, institutional representative from Tunisia, France and Europe Community, in order to close IPM-4-Citrus project, as well as to discuss with media, to promote our main scientific results and to explain the next steps of our collaboration.

Our progress indicators and main results will be introduced on Monday morning 19th December 2022 (9h00-13h00) at Les laboratoires Medis. This event will be associated with the inauguration of production unit "MEDIS Santé Végétale". In addition, if you are available, an overview of scientific results from WP2, 3 and 4 will specifically be introduced during the satellite session "IPM-4-Citrus" during congress IDB2022 (Tuesday 20th December, 2022 – 9h30-12h00).

Looking forward to seeing you, we would like to thank you in advance for attending this closing event. In the meantime, please feel free to confirm your participation at your convenience (luc.fillaudeau@insa-toulouse.fr and nadia.bensaid@labomedis.com) or to contact us for any further information you may need.

Kind Regards,

Dr Lassaad BOUJBEL General Manager MEDIS Group Mr Hafiz BOUJBEL, General Manager MédiS Santé Végétale Dr Luc FILLAUDEAU
INRAE Research director / TBI
IPM-4-Citrus project coordinator

IPM-4-CITRUS



©Fillaudeau L.(TBI), Rouis S. (CBS), Kallassy M (USJ)

Innovative approach to Integrated Pest Management for Citrus (IPM-4-Citrus)



pead more

Segura Monroy T. et al.

Dynamic model of d-endotoxin and spore productions by three *Bacillus* thuringiensis ssp kurstaki strains

Processes . 2021

https://doi.org/10.3390/pr9122147

Dartnerships

• Germany : JKI

• Italy : BIPCA (Private)

· Lebanon: USJ

Turkey: BIYANS (Private)

. Tunisia: CTA, CBS, IPT, WIKI (Private),

MEDIS (private)

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The IPM-4-Citrus project takes a multidisciplinary approach (biotechnology, bioactivity and transfer) in order to i) develop bioprocesses for a circular bioeconomy and ii) study and manage changes in scale in biotechnology. It aims to develop two new biopesticides (delta-endotoxins produced by the BLB1 and LIP strains of Bacillus thuringiensis ssp. kurstaki) that are active against citrus pests (Phyllocnitis citrella, Prays citri). Bt is an important industrial microorganism for the global biopesticide market. Modelling tools are crucial for evaluating and comparing the potential of endemic Tunisian (Btk BLB1) and Lebanese (Btk LIP) strains. Optimising bioproduction and obtaining exploitable formulated bioproducts pose scientific and technological challenges.

Results

The dynamic optimisation of the production of proteins (including endotoxins), cells and spores during the different bioproduction phases requires the use of robust models coupled with control strategies. Two models have been proposed to describe protein and spore production by *Bacillus thuringiensis* ssp. kurstaki LIP. The calibration of the models allowed researchers to calculate the kinetic parameters and was well fitted with the experimental data set.

The results showed that optimisation based on a model control strategy (MCS) maximised protein and spore productivity. The simulations were performed with *Bacillus thuringiensis ssp. kurstaki* HD1, LIP and BLB1 under different experimental conditions (complex environment) in order to prove their robustness. Experimental validation of the control law was carried out to demonstrate the accuracy of the protein and spore productivities.

ture outlook

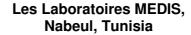
By validating the efficacy of the formulations obtained through laboratory and field tests, the project has paved the way for potential commercial exploitation of these new biopesticides. Scaling up, integrating industrial production and formulating a cost-effective product are currently the most important challenges to tackle. The MEDIS laboratories are developing a plant (Nabeul, Tunisia) to produce formulations of Btk-based biological control agents for citrus following the results and expertise of the IPM-4-Citrus consortium. They are targeting the Middle East and North Africa (MENA) markets by 2023.

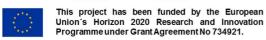


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IPM-4-CITRUS - H2020-MSCA-RISE-2016 Project n°734921 - April 2017-Jan 2023

FINAL MEETING & IDB 2022 - 19th & 20th December 2022 -

AGENDA

Monday 19 th December 2022 (@Les Laboratoires MEDIS	(Nabeul, Tunisia)

Williay	19 December 2022 (@Les Laboratoires MEDIS (Nabeul, Tunisia)		
8h30	Arrival & Registration		
9h00	Welcome forewords by MEDIS and IPM-4-Citrus coordinators		
	Introduction of official representatives		
9h05	IPM-4-Citrus project: Aims & Context		
	Les Laboratoires MEDIS, business corporate presentation		
9h15	Overview and state point about our achievement and perspectives		
	WP1 Management (main indicators, history, funding and human resources, actions, reporting:		
	deliverables overview), WP5 Networking & Outreach activities (events, consortium meeting,		
	training, workshop and Round table) and WP6 Dissemination & Exploitation (scientific		
	valorization, social and economic impact)		
10h00	Focus on Scientific and technical Work Packages: WP2 Bioprocess, WP3 Formulation & Biocontrol		
	activity and WP4 Transfer & economic maturation (3x15min).		
445.00	Coffee break (15min)		
11h00	Exchanges with officials and audience: Question/Answer		
11h15	Presentation of "MEDIS Santé végétale", from concept to production capacity		
11h30	Visit of production unit		
4.41.00	Lunch (buffet on site)		
14h00	Inauguration of production unit (media, civil society and stakeholder: project overview,		
441.45	production unit and local impact		
14h15	Poster session: scientific and technical exchanges with audience		
	Press briefing (for media with consortium scientists)		
1 F h 1 F	Coffee break (15min)		
15h15	Round tables (2 x 20min)		
	Theme 1: Technology transfer as a driver for the development of the Tunisian economy (scientific		
	point of view, industrial point of view)		
	Theme 2: Perception of biopesticides by the civil society (synthesis of the "survey". What about		
	your opinion?		
Tuesday	Tuesday 20 th December 2022 @IDB2022 (Hammamet, Tunisia)		
1 uesday	20" December 2022 (@1DB2022 (Hammamet, Tunisia)		

9h30 Satellite session IPM-4-Citrus – (open session / 2h30+coffee break)