

COMPARATIVE RESULTS 4-YEARS CULTIVATION *RHAPONTICUM* *CARTHAMOIDES* (*LEUZEA*, *MARAL ROOT*) IN CONDITIONS OF POLAND AND EUROPEAN NORTH OF RUSSIA

*Nikolay Timofeev*¹, *Pawel Kowalski*², *Jakub Krywuc*³

¹CF BIO (Research-production Enterprises); Koryazhma, Russia, e-mail: sciens@leuzea.ru

^{2,3}FITOSTAR, Gdynia, Polska, ²e-mail: pawel.wlad.kowalski@wm.com.pl; ³e-mail: jakub.krywuc@fitostar.pl

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Methods of researches. Results of 4-year-old researching of life activity of 2 agropopulations *Rhaponticum carthamoides* (Willd.) Iljin (*Leuzea*, maral root) the medicinal purpose, cultivated in Poland (Bygdoshch town, agrofirma "Fitostar") and designed for reception ecdysteroid containing pharmaceutical preparations and fodder additives. Results were compared to parameters of 4 agropopulations cultivated on the basic soil types of the European North - sandy-loam, sandy, peat and loamy soils (Russia, Arkhangelsk region).

All 6 populations descend from the seeds cultivated in one district; the area of each of them is 1-3 hectares. For both climatic zones relatives are a soil type (sod-podzolic), level of its fertility, the content of nutrients and moisture parameters. Differences are concluded in smaller duration of a frost-free period and provision of warm quantity in the European North - the sum of temperatures from above +5 ... 10 °C here less on 30-40 %, and from above 15 °C - on 50-60 %. The length of light day, on the contrary, is more during active vegetation, than in Poland (16-20 hours against 14-16).

Comparative features of growth and kind development in two geographically remote regions were probed during 2003-2006; the soil-ecological factors, which influence density and species resistance in an ontogenesis were analyzed; regularities of formation of propagules and a biomass on years of life were revealed; biological efficiency of agropopulations was estimated and the phytomass frame was positioned, accumulation of the stroma acting materials – ecdysteroids (basic bioactive molecules) in a vegetation period was researched.

Results. It is assigned, that processes of growth and development of propagules *R. carthamoides* in two different climatic regions are identical – a median number of propagules, their height, width of blades are identical to the same age states of an ontogenesis. Development to a blooming phase occupies in Poland 56-61 day, fructification of 71-77 days. Heat disadvantage in the European North is compensated by larger duration of light day - blooming comes through 44-51, fructification of 66-72 (77) days.

The average density of sowings (number of plants per acre) within first 4th years of life annually reduces, but does not overflow optimum value for each age [1]. In the conditions of Poland it is close to value in the European North: for 3rd year of life 31 against 23-32 thousand plants of/hectares, for 4th year - 21 against 19-25 thousand plants of/hectares. Individual and population variability is evoked by heterogeneity of soil conditions (first of all a water-air regimen), and also infestation of a wheat-grass creeping (*Elytrigia repens*).

Efficiency of agropopulations, irrespective of geographical region and characteristics of soils, in first three years of cultivation is negligible and it does not introduce interest for the purpose of estranging. Efficiency of dry matter in the conditions of Poland, proceeding from density and magnitude of phytomass of individuals, has compounded for 3rd year of life about 500 kg/hectare, as for above-ground, and underground organs. For 4th year of life, during a blooming phase in June, efficiency was enlarged to 700-800 kg/hectare, and in July has reached about 1000 kg/hectare.

Hereinafter (the introduction into the adult generative season), on free from infestation and an overwetting soils, it is necessary to expect the subsequent increase of efficiency in an ontogenesis. It is shown, that for 5-6th year of life in the conditions of the European North there is a doubling-trebling of magnitude of phytomass - to 2000-3000 kg/hectare, for 6-7th years - to 5000-8500 kg/hectare for above-ground parts and 3400-6500 kg/ha for underground parts [2].

The content ecdysteroids in leaves of plants of 4th year of life was strong volatile and depended on a phase of their development. The maximum concentrations ecdysteroids 20-hydroxyecdysone were observed during a budding-flowering (in May). After a phase blossom fading (in June) the content 20-hydroxyecdysone dropped in 2 times, and after fructification the difference of the content at young and old leaves has compounded 6 times.

References

1. Timofeev N.P. Age and dynamics of density of *Rhaponticum carthamoides* (Willd.) Iljin and *Serratula coronata* L. (Asteraceae) in the European North // Rastitelnye Resursy (Plant resources), 2005, 41(3): 1-13).
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Université Mohammed 1^{er}
Oujda - Maroc



Faculté des Sciences
Oujda - Maroc

SIPAM3 & CIMB1

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Accepted participation certificate

Dear Sir/Madame: **Nikolay Timofeev** sciens@leuzea.ru

Establishment: Research-Production Enterprises CF BIO Archangelsk region, city Koryazhma, ul. Lenina, 47A-55 ; Russia, 165650

Laboratory: Research-Production Enterprises CF BIO

Contributions entitled:

- 1. Comparative results 4-years cultivation rhaponticum carthamoides (leuzea, maral root) in conditions of poland and the european north of russia.**
- 2. Accumulation and variability of the contents ecdysteroids in medicinal raw material of leuzea (rhaponticum) carthamoides**
- 3. Ecologically-biochemical interactions between ecdysteroid producing plants and phytophagans [on example rhaponticum carthamoides and serratula coronata (asteraceae)]**

We are very pleased to inform you that the organising committee has accepted your work to be presented in the symposium as:

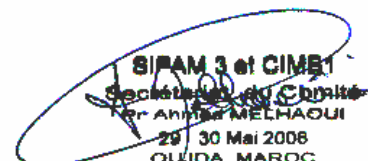
- **Poster contribution**

IMPORTANT NOTE TO AUTHORS: Acceptance without payment of the fees will not be taken in consideration.

In the hope to see you soon among us, please accept our best greeting

Best regards.

Président du Comité d'Organisation
Prof. Ahmed **Melhaoui**


SIPAM 3 et CIMB1
Secrétaire du Comité
Prof. AHMED MELHAOUI
29 / 30 Mai 2008
OUJDA MAROC

Programme

Mercredi 28 mai 2008 (après midi)	
15h00	Accueil des Participants et Inscription
17h00	Cérémonie d'ouverture
Jeudi 29 mai 2008	
8h-9h	Inscription (suite) et Affichage des posters
	Session plénière <i>Modérateurs : Melhaoui A. & Bouali A.</i> <i>(Amphithéâtre Ibn Albannae)</i>
9h00 - 9h45	Conférence Inaugurale 1 New approaches for Fourier transform mass spectrometry applied for biomolecules and complexes structural elucidation based on accurate mass measurements and ion activations. Jean Claude Tabet. Paris, France
9h45 10h15 : Pause café	
	1^{ère} Session : Biologie, Pharmacologie, Toxicologie, Phytothérapie <i>Modérateurs : Ziyat A & Atta A.</i> <i>(Amphithéâtre Ibn Albannae)</i>
	1^{ère} Session : Phytochimie, Molécules Bioactives, Valorisation <i>Modérateurs : Radi S. & Cheriti A.</i> <i>(Amphithéâtre Al Alami)</i>
10h15 - 10h45	Conférence 1 : Les plantes antidiabetiques : ressources naturelles pour le traitement du diabète. Bnouham M. Oujda, Maroc
	Conférence 2 : Isolement et identification de molécules bioactives à partir de plantes médicinales du Maroc : cas du <i>Thapsia transtagana</i> et <i>Thapsia villosa</i>. Akssira M. Mohammedia, Maroc.
10h45	<i>Communications Orales</i> O27- Evaluation biologique et chimique de composés insulino-stimulants à partir de plantes médicinales marocaines. <u>Nmila R.</u> , Rchid H., Gross R., Tijane M. El Jadida, Maroc.
	<i>Communications Orales</i> O1- Isolation and modifications of bioactive alkaloids from <i>Pancreatium canariense</i>. <u>Cedrón JC.</u> , Estévez-Braun A., Ravelo ÁG. Tenerife, Spain.

- Attia H., Ksouri R., Rabhi M. and Lachaâl M. Tunis, Tunisie.
- A125 Antioxidant activity of *Nigella sativa* L. roots and shoots from Tunisia.** Bourgou S., Ksouri R., Bellila A., Falleh H. and Marzouk B. Hammam-Lif, Tunisia.
- A126 A comparison of antioxidant properties between artisan-made and factory-produced chocolate.** Cervellati R., Greco E., Costa S., Guerra MC., Speroni E. Bologna, Italy.
- A127 Investigation of antioxidant, acetylcholinestérase and antimicrobial activities of TOF and decoction extracts of *Cymbopogon schoenanthus* L. (Poaceae).** Khadri A., Lino Rosa L., Luisa M., Serralheiro M., Neffati M., Eduarda M., Araújo M., Smiti S. Tunis, Tunisia.
- A128 Capacité de piégeage des radicaux libres de l'extrait brut de *Crataegus oxyacantha*.** Mohammedi Z. et Atik F. Tlemcen, Algérie.
- A129 Etude de l'activité anti-inflammatoire de l'extrait méthanolique de *Corrigiola telephiifolia* Pourr.** Lakmichi H., Bakhtaoui FZ., Loutfi K., Gadhi CA. Marrakech, Maroc.
- A130 Sélection et caractérisation des substances naturelles aux propriétés immunomodulantes.** El-Youbi El-Hamsas A., Ouahidi I. et Arab L. Fès, Maroc.
- A131 Effet myorelaxant et spasmolytique de Ain larneb (*Globularia alypum* L.) Sur le jéjunum du lapin.** Doukali R., Chokri A. et Bencheikh R. Fès, Maroc.
- A132 Relaxant effect of aqueous extract of *Cistus salvifolius* on rodent intestinal contractions.** Oubenchiker K., Karim A., Mekhfi H., Bnouham M., Ziyat A., Legssyer A., Melhaoui A., Atmani F., Bouali A. and Aziz M., Oujda, Maroc.
- A133 Activite anti-diarrhéique de *Zygophyllum gaetulum*.** Khabbal Y., Ait El Cadi M., Alaoui K., Faouzi MA., Bruno U., Mahraoui L., Cherrah Y. Rabat, Maroc.
- A134 Accumulation and variability of the contents ecdysteroids in medicinal raw material of *Leuzea (rhaponticum) carthamoides*.** Timofeev N.P. Russia.
- A135 Ecologically-biochemical interactions between ecdysteroid producing plants and phytophagans [on example *Rhaponticum carthamoides* and *Serratula coronata* (asteraceae)].** Timofeev N.P. Russia.
- A136 Implication de la mélatonine seule ou combinée avec l'imipramine dans la régulation du niveau de dépression chez le rat.** Ouichou A., Benabid N., Ouakki S., Nasri I., Alaoui N. et Mesfioui A. Kénitra, Maroc.
- A137 Action de la mélatonine en absence ou en présence du diazepam sur le niveau d'anxiété chez le rat.** Mesfioui A., Ouakki S., Nasri I., Benabid N., Alaoui N. et A. Ouichou. Kénitra, Maroc.
- A138 L'effet de *Ficus-carica* et *Zea mays* sur les calculs urinaires majoritaire**

- Jauregui J. and Alvarez Cansino L. Taza, Maroc.
- A179 Impact des conditions hydro halomorphes sur *Zygophyllum album* dans le sud-est Algérien : cas de la cuvette de Ouargla.** Daddi Bouhoum M., Brinis L., Ould El Hadj MD. et Saker ML. Ouargla, Algérie.
- A180 Phylogéographie de l'ADN chloroplastique chez l'arganier étude comparative avec les populations reliques.** El Mousadik A. & Petit R., Agadir, Maroc.
- A181 Molécules actives de *Trichoderma harzianum* et *Rhizobium leguminosarum*.** Essalmani H. Université Tanger, Maroc.
- A182 Culture of aromatic and medicinal plants and the europgap certification.** Bouras M., ElbahrI Y. and Lamarti A. Tetouan, Morocco.
- A183 Multiplication *in vitro* et marquage moléculaire pour la conservation de l'arganier.** Jabbar Y., Majourhat K., Hafidi A et Martinez-Gomez P. Marrakech, Maroc.
- A184 Contribución à l'étude de la capacité organogène *in vitro* de safran (*Crocus sativus* L.).** Rahmoun A., Lage M. and Lamarti A. Tetouan, Maroc.
- A185 Comparative results 4-years cultivation *Rhaponticum carthamoides* (leuzea, maral root) in conditions of Poland and the European north of Russia.** Timofeev N.P. Koryazhma, Russia.
- A186 Salt effect on fatty acid composition of coriander (*Coriandrum sativum* L.) Leaves.** Neffati M. and Marzouk B. Hammam-Lif, Tunisia.
- A187 Effets Du Calibre Des Noyaux Et De Leur Prétraitement Sur La Germination De L'arganier Des Béni-Snassen «*Argania spinosa* (L.) SKEELS ».** Berrichi A., Reda Tazi M., Fouzi K., Bekkouch I., Boukroute A. Oujda, Maroc.
- A188 La multiplication végétative par bouturage de la verveine et de la marjolaine.** Boukroute A, Berrichi A, Reda Tazi M. Oujda, Maroc.
- A 189 Tissues cultures of *Matricaria recutita* L. and chimiotaxonomy.** Errehouni S. and Lamarti A. Tetouan, Morocco.
- A190 Le codium fragil : Identification, caractérisation de la paroi et analyse des métaux lourds.** Ben Gueddour Y., EL Hassouni H., EL Hani S., Abdellaoui D., Gmira N. Ben Gueddour R. Kénitra, Maroc.
- A191 Copper ions biosorption properties of two desert plants: *Anabasis aetioides* and *Acacia raddiana*.** Talhi MF., Benchiekh W., Cheriti A., Belboukhari N. & Roussel C. Bechar, Algeria.
- A192 Propriétés antioxydantes des composés phénoliques des feuilles de *Pistacia lentiscus*.** Nabila Benhammou, Fawzia Atik Bekkara, Tlemcen, Algérie.
- A193 Médicaments à base de plantes: vers une maîtrise de leur qualité et législation au Maroc.** Yahyaoui R. Et Bouchentouf D. Syndicat des pharmaciens d'officine d'Oujda (SRPOO), Oujda - Maroc.