PROGRAM: ***PARTENERIATE IN DOMENIILE PRIORITARE***

NUME PROIECT: STUDIUL BIOCHIMIC COMPLEX AL MODIFICARILOR METABOLICE LA STRESUL HIDRIC AL SOIURILOR AUTOHTONE DE GRAU DIN OLTENIA

Acronim: **SECEMETAB**
Nr. Contract 51024/2007
Numar de inregistrare la Universitate / Data contract: 68C/14.09.2007

Modul **: 4**

Director proiect: BABEANU ILEANA CRISTINA

Parteneri: **P1**. CENTRUL DE BIOCHIMIE APLICATA SI BIOTEHNOLOGII BIOTEHNOL BUCURESTI
P2. STAȚIUNEA DE CERCETARE ŞI DEZVOLTARE AGRICOLĂ SIMNIC
P3 INSTITUTUL NATIONAL DE CERCETARE-DEZVOLTARE PENTRU PEDOLOGIE, AGROCHIMIE SI PROTECTIA MEDIULUI - ICPA BUCURESTI

Data incepere / finalizare proiect: 18.09.2007/15.09.2010

Valoarea proiectului (pe ani): **2007: 107200**
2008: 387500
2009: 885300
2010: 320000

Rezumat:
Schimbarile climatice reprezinta una dintre provocarile majore ale secolului nostru, un domeniu complex in care trebuie sa ne imbunatatim cunoasterea si intelegerea, pentru a lua masuri imediate si corecte in vederea asigurării obtinerii de productii agricole performante. Seceta ramane inca un stres abiotic major care ameninta productia agricola in multe parti ale lumii, apa devenind o resursa rara care necesita un management economic si de mediu efectuat cu mare grija Luind in considerare importanta actuala a obtinerii unei recolte de grau de calitate, corespunzatoare cerintelor industriei prelucratoare s-au impus cercetari in vederea crearii si selectarii de noi soiuri cu caracteristici performante. In acest scop proiectul isi propune experimentarea riguroasa in culturi comparative a unui sortiment larg de soiuri si linii de perspectiva, in conditiile pedo-climatice si tehnologice specifice zonei Oltenia (ca nivel de asigurare a apei si azotului), pentru evidentierea genotipurilor cu performantele cele mai ridicate si stabile ca şi identificarea de materiale genetice corespunzătoare pentru realizarea unui progres genetic viitor în această direcţie. Proiectul propus este un exemplu de concept biochimic aplicat la evidentierea aspectelor metabolice ale proceselor de crestere si dezvoltare a genotipurilor de grau sub influenta stresului hidric, identificarea unor criterii specifice de selectie si a unor indici biochimici care pot fi utilizati ca markeri ai proceselor biochimice studiate. Procesele metabolice care au loc in diferite faze de vegetatie se vor urmari prin studii enzimatice, prin deteminari ale unor componente de structura, functionale si de reglare (aminoacizi, proteine, glucide, vitamine, etc.). In paralel se va urmari evolutia plantelor si culturilor studiate din punct de vedere morfologic si fiziologic. Se vor identifica si recomanda cultivatorilor soiurile de grau capabile sa asigure cu cea mai mare probabilitate obtinerea unor recolte cu parametrii calitativi solicitati de industria de panificatie de pe piata interna si internationala a graului

ETAPELE PROIECTULUI SI DATELE DE PREDARE
Etapa I Caracterizarea agrochimica, pedologica si climatica la nivel regional si zonal si infiintarea experientei in cultura comparativa / 15.12.2007
Etapa II Studiul biochimic complex al proceselor de crestere si dezvoltare a genotipurilor in testare (an I cultura) /15.06.2008
Etapa III Stabilirea efectelor stresului hidric asupra cresterii si dezvoltarii plantelor de grau Identificarea indicilor biochimici relevanti pentru mecanismele de adaptare . 15.12.2008
Etapa IV Studiul modificarilor metabolice a proceselor de crestere si dezvoltare a genotipurilor in testare si a mecanismelor de raspuns la stresul hidric (an II cultura) /15.06.2009
Etapa V Elaborarea metodologiei de selectie specifica genotipurilor tolerante/rezistente la stress hidric /15.12.2009
Etapa VI Identificarea celor mai relevanti si sensibili indici biochimici de adaptare la stres hidric si selectia genotipurilor tolerante.; stabilirea tehnologiei optime in vederea obtierii de productii performante conform potentialului genetic. 15.09.2010

PROGRAMME:

NAME OF THE PROJECT: THE COMPLEX BIOCHEMICAL STUDY OF THE METABOLIC CHANGES OF NATIVE VARIETIES OF WHEAT FROM OLTENIA UNDER HYDRIC STRESS

Acronym: **SECEMETAB**

University Registration Number / Contract date: 68C/14.09.2007
Module : 4
Director of project: BABEANU ILEANA CRISTINA

Partners: **Applied Biochemistry and Biotechnologies Center BOTEHNOL**
Research and Agricultural Development Station from Simnic
National Research Institute for Pedology, Agrochemistry and Environment Protection – ICPA Bucharest

Period: 18.09.2007/15.09.2010

Budget: **2007: 107200**
2008: 387500
2009: 885300
2010: 320000**2007: 107200**

Summary:

Climatic changes represent one of the most important challenges of this century, a vast field that requires an improvement of knowledge and understanding in order to take the immediate and correct measures with a view to assure the obtaining of a performing agricultural crop. The draught is still a major abiotic stress which threatens the crops all over the world, water becoming a rare resource that requires a carefully made economical and environmental management. Taking into account the present importance of obtaining a high-quality wheat crop in accordance with the demands of the processing industry it is essential to research in order to create and select new sorts with performing qualities. With that end in view, this study aims to thoroughly experiment of a large variety of kinds in comparative crops in the specific pedological, climatic and technological conditions of Oltenia (from the point of view of water and nitrogen supply) in order to point out the most stable and high performance genotypes and also identifying the corresponding genetic materials with a view of realizing a future genetic progress in this direction. The suggested project is an example of biochemical concept applied in order to point out the metabolically aspects of the growing and development of wheat genotypes under the influence of thermal and hydric stress, identification of specific criteria of selection and biochemical values that can be used as markers of the studied biochemical processes. The metabolic processes that take place in different stages of vegetation are to be watched through studies of the enzymes, determinations of structural, functional and adjustment components (aminoacids, proteins, glucides, vitamins). In the same time, plant as well as crop evolution are to be watched from the morphological and physiological point of view. There will be identified and recommended those wheat varieties capable to assure crops having the required qualitative parameters for bread grains industry both on the internal as well as international wheat market.

SCHEDULE, BUDGET AND REPORT DEADLINES

I Agro-pedological and climatic characterization at a regional and zonal level and setting the experience for the comparative crops. /15.12.2007

II A complex biochemical study of the growth and development processes for the tested genotypes (first year crop) 15.06.2008

III Establishing the hydric stress effects on the wheat growth and development; identifying the relevant biochemical indices for the adjustment mechanism 15.12.2008

IV Studying the metabolic alterations of the growth and development processes for the tested genotypes and the feed-back response to the hydric stress (second year crop) 15.06.2009

V Putting up the selection methodology specific for the tolerant resisting genotypes to the hydric stress; 15.12. 2009

VI Identifying the most relevant and variable biochemical indices for the hydric stress adjustment to select hydric stress tolerant genotypes, to establish the best technology to get good crops according to the genetic potential. 15.09.2010