

**Presentation of funded projects in 2007 for
 Program: « Green Chemistry and Processes for a sustainable
 development »**

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Edition 2007

Title	5P - Procédé Propre de Production de Poudres Polyamide
Abstract	<p>In this project, industrial and academic partners will cooperate in order to examine and develop a clean process for the manufacturing of polyamide powders starting from the molten state. This process will suppress the grinding stage that generates waste and noise, or avoid the use of solvents when the particles are manufactured in suspension in a liquid medium. As the viscosity of the polymer is an important parameter in this process, rheological measurements will be performed as a function of temperature, pressure, molecular weight and water content, in order to define the relationship between the real viscosity of the product in the reactor and the morphologies of the powders obtained at the end. Specific morphologies are needed for some applications. Powders will be tested in one high added value application.</p>
Partners	<p>ENTREPRISE INPL-EA1743 – GEMICO EMAC-CNRS-UMR_2392 - RAPSODEE-GPMS</p>
Contact point	<p>confidential</p>
ANR funding	<p>618624 euros</p>
Start date and duration	<p>36 months</p>
Contract	<p>ANR-07-CP2D-01</p>

Program: « Green Chemistry and Processes for a sustainable development»

Edition 2007

Title	CALIST - Rôle spécifique de l'auto-organisation des liquides ioniques dans les réactions catalytiques
Abstract	<p>This project concerns the use of alternative media, composed of ionic liquids, in view of a more sustainable chemical industry. The aim is to understand the role of the molecular and structural properties of ionic liquids in the synthesis of nanoparticles of controlled size, and in their subsequent use in stereoselective catalysis. The originality of the project is to put fundamental, state-of-the-art knowledge on physicochemical properties at the service of the development of new catalytic reactions. This will be achieved by bringing together specialists on experimental and theoretical physical chemistry, nanoparticle synthesis in solution by mild chemistry, and catalysis in ionic liquid media. A multi-dimensional problem will be addressed: how does the self-organisation of ionic liquid phases, that exhibit microphase segregation between charged and non-polar spatial domains of nanometer scale, affect the quality and stability of metallic nanoparticles obtained therein (size, shape, dispersion, composition), and what are the consequences to stereoselective catalytic reactions.</p>
Partners	<p>CNRS-UMR_6003 - LTSP (coordinator) CNRS-UMR_5265 - C2P2-LI CNRS-UPR_8241 - LCC-NCO (NANO COMPOSITES ORGANOMÉTALLIQUES) CNRS-UMR_7575 - LECA</p>
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ANR funding	<p>339389 euros</p>
Start date and duration	<p>1/12/07 - 36 months</p>
Contract	<p>ANR-07-CP2D-02</p>

Program: « Green Chemistry and Processes for a sustainable development»

Edition 2007

Title	CANTO (Chimie-ANalyse décisionnelle-Toxicité) - Intégration de méthodes d'analyse décisionnelle et de chimie prédictive pour l'évaluation de la toxicité
Abstract	<p>CANTO brings together a team of scientists in the areas of chemistry, reprotoxicology, molecular modeling and applied mathematics in order to develop Integrated Testing Strategies (ITS) for reprotoxicology. ITSs are central to a sustainable development for chemistry and to the REACH regulation on chemical substances. Their usefulness is particularly relevant for reprotoxicity. Indeed, because of the economic and ethic impact intrinsic to this endpoint, there is a need both for evidence-based testing strategies, and for alternatives to animal testing (in vitro and in silico testing).</p> <p>CANTO will deliver an operational structure for the development of testing strategies for reprotoxicity thanks to five independent and homogenous tasks: framework (decisional analysis, databases, uncertainty analysis), toxicology expertise, in silico modeling, case studies and development of a software toolbox</p>
Partners	INERIS - TOXI-EM (coordinator) SCIENOMICS
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ANR funding	478884 euros
Start date and duration	1-12-07 - 36 months
Contract	ANR-07-CP2D-03

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Edition 2007

Title	CASAL - CATALYSE PAR DES "SUPER-ACIDES" DE LEWIS
Abstract	<p>The main purpose of this project is the development of novel cycloisomerisations and Friedel - Crafts reactions catalysed by metallic triflates and triflimidates acting as Lewis "super-acids". The project associates synthetic, as well as mechanistic and theoretical aspects. Cycloisomerisation reactions of 1,6-dienes will be applied to the synthesis of original substituted gem-dimethylcyclohexanes and cycloheptanes as potential new fragrant molecules. Catalytic Friedel-Crafts type allylation and alkylation processes will be developed with these new catalysts, with potential applications as pharmaceuticals and as flavours/fragrances. Coupling reactions will be optimised in terms of reduction of catalyst loading, solvent (including processes without solvent), and catalyst recycling. Mechanistic investigations will mainly be performed by means of labelling experiments and kinetics. Theoretical studies will look for a better understanding of the specific high activity of Lewis "super-acids", as compared to more classical ones.</p>
Partners	<p>LCMBA, UMR 6001 (coordinator) CHIROTECHNOLOGIES : UMR 6180</p>
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ANR funding	<p>398450 euros</p>
Start date and duration	<p>36 months</p>
Contract	<p>ANR-07-CP2D-0-0</p>

Program: « Green Chemistry and Processes for a sustainable development »

Edition 2007

Title	CATAQ - Nanoréacteurs hydrosolubles à base de cyclodextrines pour la catalyse dans l'eau
Abstract	<p>CATALYSIS of classic organic reactions (hydrogenation of C=C and C=N bonds; hydrosilylation, hydroformylation, metathesis of C=C bonds, and C-C coupling) IN WATER is now a major challenge of "GREEN CHEMISTRY".</p> <p>In this context, the covalent or supramolecular assembly of dendrimers and cyclodextrins possessing a catalytically active center appears as an original approach to enhance the reactivity and the solubility of highly hydrophobic organic molecules in biphasic systems. Such dendritic/cyclodextrin assemblies containing a catalytically active center can be viewed as water-soluble, active molecular reactors. We propose two approaches whose common objectives are to improve mass transfer of organic substrates into the aqueous phase and the reactivity of the substrate allowing their selective transformations.</p> <p>In the first approach, cyclodextrins and the organometallic catalyst will be covalently attached to dendrimers.</p> <p>In the second approach, CYCLODEXTRINS will be bound in a non-covalent (supramolecular) way to dendrimers using termini that match best inclusion into cyclodextrins (adamantyl, tertibutyl ou ferrocenyl). Alternatively, the cyclodextrins will be replaced by another water-solubilizing group (sulfonate or carboxylate). These dendrimers will contain a catalytically active core such as a polyoxometallate, an organometallic-phosphine complex surrounded by covalently attached dendrons on the phosphine or an encapsulated transition-metal nanoparticule. The efficiency of these water-solubilizing active molecular reactors will be evaluated in the different reactions catalyzed by Co, Rh, Pd, Pt, Mo, W and Ru that are mentioned in the introduction of this abstract.</p>
Partners	UB1-UMR_5255 - ISM-NMC (coordinator) UA-FRE_2485 - LPCIA CNRS-DRA-UMR_5256 - IRCELYON
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ANR funding	400000 euros
Start date and duration	1/12/07 - 36 months
Contract	ANR-07-CP2D-05

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Edition 2007

Title	CIL-MCRs - Reactions Domino Multicomposés et Liquides Ioniques à Tâches Spécifiques : Nouvelles Approches Eco-Compatibles en Synthèse Organique
Abstract	In the last few years, SYMBIO team has obtained a good experience in the field of multicomponent reactions. These one-pot green processes allow to reach large molecular complexity combined with high functional diversity, whilst taking into account some important criterias of green chemistry such as step and atom economy and limitation of by-products and wastes. By establishing this new collaboration with LSPCIMB team, we want to take the challenge of the utilisation of chiral ionic liquids (CILs) in multicomponent reaction, with the aim to induce enantioselective transformations. Our objectives are not only to replace a molecular solvent by a non-toxic one, but also to take advantage of the catalytic potentialities of CILs, and to control the stereoselective outcome of these transformations. CILs structures/enantioselectivity relationships will be studied, in order to modify and to prepare new chiral species dedicated to the studied multicomponent reactions.
Partners	UPC-UMR_6178 - SYMBIO (coordinator) UPS-UMR_5068 - LSPCIMB UPC-UMR_6180 - CCB
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ANR funding	399294 euros
Start date and duration	01/12/07 - 36 months
Contract	ANR-07-CP2D-06

Program: « Green Chemistry and Processes for a sustainable development»

Edition 2007

Title	GlyBioSynth - Glycérol : Biosynthon pour une Agriculture Durable
Abstract	<p>The development of new fungicides from renewable raw materials such as glycerol, co-product of the biofuel industry, represents a great alternative to respond to the increasing demand from politics and consumers for environmentally friendlier pesticides. New and safe derivatives have to be synthesized according to the principles of Green Chemistry in order to fully take benefit of the environmental advantages resulting from the use of glycerol. Syntheses of dithiocarbamic esters will be carried out from glycerol through different green pathways. The fungicide and fungistatic activities will be investigated in vivo and in vitro on "champignons phytopathogènes" known to cause dramatic problems in many different croplands. The titration and studies of the different metabolisms will be also performed in order to evaluate their environmental impact. Substrates exhibiting the best activity will be tested according to usual processes by an industrial closely involved in this yield.</p>
Partners	<p>CNRS-DCPC-UMR_6514 - SRSN (coordinator) CNRS-DCPC-UMR_6503 - LACCO CNRS-DCPC-UMR_6161 - TA UPJV - PFA JOUFFRAY-DRILLAUD S.A. - NON CTCPA</p>
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ANR funding	<p>678162 euros</p>
Start date and duration	<p>01/12/2007 - 36 months</p>
Contract	<p>ANR-07-CP2D-07</p>

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Edition 2007

Title	GLYCENLI - Glycosylation en présence de liquides ioniques
Abstract	Glycosylation in ionic liquids is part of a project devoted to the development of environmentally benign processes. Atom economy and limitation of environmental impact factor will be the main issue in this new method of glycosidic synthesis. Protection and deprotection steps which usually generate a large amount of waste will be avoided thanks to the use of ionic liquids. Two parallel approaches will be achieved. The first one deals with Fischer glycosylation in non aqueous ionic liquids. This will allow to strongly limit the hydrolysis as a reverse reaction. The second one concerns the use of alpha-galactosidases in aqueous ionic liquids.
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ANR funding	370000 euros
Start date and duration	01/12/2007 - 36 months
Contract	ANR-07-CP2D-20

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Edition 2007

Title	H2OFerCat - Arylation, hydrogénation et activation C-H catalysées en solvants propres par des métaux peu coûteux: Enjeux scientifiques, économiques et environnementaux
Abstract	The main goal of this project is to discover novel catalytic systems that are non-toxic, quite cheap and environmentally friendly. In this project, three main catalytic reactions will be studied : arylation of nucleophile (N-, C- or O- nucleophiles), hydrogenation and C-H bond activation. Catalysts will be based on Copper (for arylation) and Iron for the three reactions. Preferred solvents will be water or ethanol. To reach our goals, we will develop several pathways, one of them will be to use hydrosoluble phosphines or imines derivatives as ligands, another one will consist in grafting our ligands on dendritic supports to expect a better catalytic effect. Experimental strategies will be elaborated and a mechanistic study will be held during all this project. The expecting results will have certainly important and deep applications in industry and for a sustainable development.
Partners	ENSCM-UMR_5253 - ICG-AM2N-MSMC-MT (coordinator) CNRS-DRMP-UPR_8241 - LCC-HMMS ENS-UMR_8640 - UMR P.A.S.T.E.U.R.
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ANR funding	390280 euros
Start date and duration	01/12/2007 - 48 months
Contract	ANR-07-CP2D-08

Program: « Green Chemistry and Processes for a sustainable development»

Edition 2007

Title	INNO-TOX - Validation des méthodologies in-silico et in-vitro pour l'évaluation de la toxicité et de l'éco-toxicité des substances et préparations
Abstract	<p>The validation of the in silico and in vitro evaluation of toxicity and eco toxicity against traditional in vivo evaluations is the objective of the present study.</p> <p>Within the frame of the increasing (exponential) demand of Tox studies on substances already on the market and on preparations already on the market or being developed, the validation of in silico tox evaluations shall open lots of doors with the following advantages:</p> <ul style="list-style-type: none">- anticipation (no quantities for testing and no chemical production needed)- fast response, a time range reduction factor of about 25- deontology as no tests animals requested(not any more accepted in cosmetics)- lower costs about 1/10th compared to the classical approach. <p>The CERMN for his in silico expertise, the CNRS-UMR-7146 for the in vitro know-how, PCAS as a large range of fine chemicals manufacturer and two downstream users, combine their efforts in an innovative validation against classical in vivo testing.</p>
Partners	PCAS (coordinator) UC-EA_3915 - CERMN UPV-UMR_7146 - LIEBE
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ANR funding	819817 euros
Start date and duration	01/12/2007 - 36 months
Contract	ANR-07-CP2D-09

Program: « Green Chemistry and Processes for a sustainable development »

Edition 2007

Title	LIGNOSTARCH - Greffage et modification de l'amidon plastifié par des lignines et leurs analogues : chimie sous rayonnement et procédés propres
Abstract	The LignoStarch project is aimed at the modification of amorphized starch with lignin and lignin-like compounds, and by processing the resulting starch-based materials with original and clean processes (ionising radiation, enzym. transformation, reactive extrusion). The structural modifications and the changes in properties that result from the selected treatments will be studied with emphasis on specific issues that currently limit the development of starch-based materials as substitutes to synthetic plastics: poor mechanical properties, high hydrophilicity and retrogradation. The main topics of the program include: (i) the modification of starch molecular architecture by controlled grafting and scissioning and its influence on mechanical properties, (ii) the control of thermodynamic bulk and surface properties of blends in relation with the nature, composition and location of the lignin additives, (iii) the effect of macroscopic and local orientation on the physical and mechanical properties. The performances of the resulting materials will be assessed (mechan. prop. life cycle assessment).
Partners	CNRS-DRCE-UMR_6519 - RSA (coordinator) CNRS-DRCE-FRE_2715 - ISTSSN INRA-UMR - FARE INRA-UMR_206-CB - CBAPT ARMINES-EMD - TPCIM
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ANR funding	385099 euros
Start date and duration	01/12/2007 - 36 months
Contract	ANR-07-CP2D-10

Program: « Green Chemistry and Processes for a sustainable development»

Edition 2007

Title	MATCALCAT - Matériaux calixaréniques pour la catalyse
Abstract	<p>This project concerns green chemistry. The principles of sustainable development, those of an industrial production carried out in harmony with the environment, and the necessity to take into account resource depletion demand an increased synergy between the Chemical Sciences and Industrial Chemistry. In this respect, improvement of industrial syntheses constitutes a major economic challenge. The aim of this project is to develop new catalytic systems for the utilisation of hydrocarbons. Organometallic complexes derived from calixarene ligands will be prepared and studied either as molecular compounds or as complexes immobilized on a silica surface where they form a monolayer with well-defined catalytic sites. The complexes and the materials derived thereof will be assessed as catalysts in alkane metathesis, oligomerisation of alkenes, Heck and other C-C coupling reactions.</p>
Partners	CNRS-ICS-UMR_7177 – LCIM (coordinator)
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ANR funding	455432 euros
Start date and duration	01/12/2007 - 36 months
Contract	ANR-07-CP2D-21

Program: « Green Chemistry and Processes for a sustainable development »

Edition 2007

Title	MESORCAT - Organocatalyse asymétrique en milieu confiné : Silices hybrides mésoporeuses fonctionnelles
Abstract	Eco-friendly asymmetric reactions will be developed thanks to the use of chiral organic catalysts immobilised in wide cavities of mesoporous silicas. Besides the advantages of the heterogeneous catalysts (ease of separation of the catalyst from reaction mixture, elimination or minimisation of additional and often be expensive work-up procedures, possibility of recycling for repeated use), this approach would allow efficient enantioselective transformations in chiral confined medium, a research area still in its infancy. C-H bond forming reactions (enantioselective decarboxylation, Nazarov cyclization) still under developed in organocatalysis, have been chosen as model reactions in order to access to non natural alpha-aminoacids, to a inhibitor of platelets aggregation and to diverse bicyclic structures. The project will be carried out in Caen (synthesis of organocatalysts, evaluation of homogeneous and heterogeneous organocatalysts, applications) and in Montpellier (synthesis of heterogeneous organocatalysts, characterisation, optimisation for the development of sustainable technologies and environmentally friendly processes.
Partners	CNRS-UMR_6507 - LCMT (coordinator) ENSCM-UMR_5253 - ICG-AM2N-OS
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ANR funding	370093 euros
Start date and duration	01/12/2007 - 36 months
Contract	ANR-07-CP2D-11

Program: « Green Chemistry and Processes for a sustainable development »

Edition 2007

Title	MICROX - Green oxidation by hydrogen peroxide in water microemulsions : From small scale to pilot processes
Abstract	<p>Microemulsions allows the solubilisation of large amounts of oil in water. Consequently, we can consider their use as green reaction media by a judicious choice of the surfactants and cosurfactants.</p> <p>The proposed project concern the oxidation in micoemulsions of cyclohexene by hydrogen peroxide to adipic acid and the oxidation of oleic acid to azelaic acid, two diacids used in the manufacture of nylon.</p> <p>The interest of microemulsions for this kind of reaction is also related to the fact that the oil is also the reactant according to the molecular economy principle. Consequently there will be an evolution of the medium as the reaction progression, leading to a spontaneous demixing at the end of the synthesis.</p> <p>This behaviour will largely exploited for an easy extraction of the products and to develop a batch process.</p> <p>The main challenge of this project will be the technology transfer from a small scale synthesis in microemulsion, to a large scale pilot process. This step will be realized in close collaboration with a laboratory specialized in the structural study of the microemulsions, and also with a laboratory of chemical engineering.</p>
Partners	UPS-UMR_5623 - IMRCP (coordinator) UPPA-UMR_5150 - LFC CNRS-UPS-INPT-UMR_5503 - LGC-RMS-PC (RÉACTION MÉLANGE SÉPARATION)
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ANR funding	344841 euros
Start date and duration	01/12/2007 - 36 months
Contract	ANR-07-CP2D-12

Program: « Green Chemistry and Processes for a sustainable development»

Edition 2007

Title	Multimétabioproduct - Reconstitution d'une voie de métabolisation humaine chez un micro-organisme pour la bioproduction de molécules chimiques connues ou nouvelles
Abstract	The study of human metabolism of exogenous molecules is a key-step in the study and the use of these molecules (pharmacokinetic, metabolism, toxicology). Some alternative systems to the synthesis and production by a chemical way of the human metabolites were developed. These systems involve the heterologous expression of human hepatic proteins in micro-organisms and have allow the reconstitution of the phase I of the metabolism (CYP450, ...) of drugs or toxic molecules in the yeast <i>S. cerevisiae</i> . The formation of human metabolites has been demonstrated (microsomes or bioconversion) mainly in the analytical domain. In order to develop a production use (metabolites and new chemical entities) an optimisation of the expression system is required. This optimisation constitute one of the two part of this project, the other is the development of yeast strains allowing the phase II of drug metabolisation (UGT, GSTs,...). The main goal of this project is to reconstitute a complex human system allowing the bioproduction of chemical molecules by an alive organism.
Partners	SPI-BIO - BDM (coordinator) CNRS-UPR_2167 - CGM GLYCODE
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ANR funding	502867 euros
Start date and duration	01/12/2007 - 36 months
Contract	ANR-07-CP2D-13

Program: « Green Chemistry and Processes for a sustainable development»

Edition 2007

Title	OCA:OCV - OrganoCatalyse Asymétrique : un Outil pour la Chimie Verte
Abstract	Enantioselective organocatalysis offers highly convenient tools for efficient, economic and eco-compatible synthetic and manufacturing processes. Its development is however at a very early stage. Thus, only a few catalysts are available and their synthetic potential is largely underdeveloped. The aim of this project is to afford advances in the field of organocatalysis by (i) the design of new phosphorus and nitrogen-based catalysts and (ii) the development of new organocatalytic reactions, methods and synthetic applications. Targeted reactions are the electrophilic amination, the phosphine promoted [3+2] cyclisations and the nucleophilic activation of vinylketenes. Synthetic procedures based on domino processes will be settled by combining organocatalytic reactions in multistep sequences. Natural and synthetic products with known biological properties will be prepared in this way, including pyrrolidine based NK1 receptor antagonists, terpenes, cytotoxic lactons and statin derivatives.
Partners	CNRS-UMR_8180 - ILV (coordinator) CNRS-UPR_2301 - ICSN ENSCM-UMR_5253 - ICG-AM2N-MSMC-JMC
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ANR funding	388693 euros
Start date and duration	01/12/2007 - 36 months
Contract	ANR-07-CP2D-14

Program: « Green Chemistry and Processes for a sustainable development»

Edition 2007

Title	Polymer Bio-Path - BIO-INSPIRED CATALYTIC PLATFORMS AS A SUSTAINABLE ROUTE TO POLYMERS
Abstract	<p>This project aims at developing new sustainable routes to polymers based on bio-inspired, metal-free catalysis involving organo-catalytic platforms and/or modified enzymes which both operate through reaction mechanisms presenting some similarities. The design and study of organo-catalytic platforms (at ISM and LCPO) and of tailored enzymes (at LISBP, LCPO) will be oriented towards the catalysis of polymerisation reactions in environmentally friendly conditions, and will rely on the complementary know-how of all partners involved: biochemists (LISBP), organic chemists (ISM) and polymer chemists (LCPO). These catalytic systems will be investigated for the polymerisation of heterocyclic monomers, (1) lactones and lactides as model systems, and (2) epoxides, for which (co)polymerisation has not been yet thoroughly explored. This last part of the work will be focused on the use of epoxides derived from glycerol, which is available in large quantity from the biomass. Our final goal is to generalise this green approach to the synthesis of a larger number of polymers from monomers issued from the biomass.</p>
Partners	<p>ENSCP-UB1-UMR_5629 - LCPO (coordinator) INSA-CNRS-INRA-UMR_5504 - LISBP-EAD1-GCIME UB1-CNRS-UMR_5255 - ISM-NEO</p>
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ANR funding	<p>397857 euros</p>
Start date and duration	<p>01/12/2007 - 36 months</p>
Contract	<p>ANR-07-CP2D-15</p>

Program: « Green Chemistry and Processes for a sustainable development»

Edition 2007

Title	PRODULUZ - Procédé durable de transformation et valorisation de la luzerne : etude d'un procédé de déshydratation intensif et récupération des produits à haute valeur ajoutée.
Abstract	Alfalfa is the most cultivated leguminous plant. It has an important biological interest as a result of its high content on proteins, vitamins and colorants. Due to its low sugar content, alfalfa is not well adapted to silage and is therefore industrially transformed in a two-step process, by mechanical compression and drying. Pressing results in production of large volumes of plant juice (green juice) containing valuable biomolecules while drying results in high-energetic consumption. The aim of this project is to study sustainable processes in order to improve energetic and mass balances. We propose to combine a high-efficient mechanical treatment with an efficient separation process in order to reduce energy consumption during the drying step and to produce pure substance(s), such as soluble proteins, to provide either chemical or dairy industries. Two chromatographic separation processes, based on ion-exchange in expanded bed mode and hydrophobic interactions, will be studied. Environmental assessment of the new process will be carried out by environmental and thermodynamic methods.
Partners	INSA-UMR_5504 - LISBP-SOPHY (coordinator) EMAC-CNRS-UMR_2392 - RAPSODEE-CSB INPT-INRA-ENSIACET-UMR_1010 - LCA
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ANR funding	582250 euros
Start date and duration	01/12/2007 - 36 months
Contract	ANR-07-CP2D-16

Program: « Green Chemistry and Processes for a sustainable development»

Edition 2007

Title	RAPIC - Réacteur A Plaques Intensifié à Coût réduit
Abstract	<p>Process Intensification for chemical production is at present a major concern of the manufacturers of the chemistry. This alternative, in breakthrough with the traditional batch processes, consists in transposing syntheses into continuous plug flow reactors with an intensification of the process: it is the concept of multifunctional heat exchanger - reactor. In this context, the RAPIC project, has for ambition to develop an innovative component, but low cost in the scale 10 kg / hour. It is original in the sense where it not only has to answer the constraints of the implementation of exothermal reactions, but also to be as close as possible to technologies mature in the heat exchangers sector by adapting them to the reactive media and by respecting the imperatives of cost imposed by the market. This project deals as the step of design at the local scale until the experimental validation at the laboratory scale.</p> <p>The involvement in the project of a leading chemical group (Rhodia) as well as a parts manufacturer (Nordon Cryogénie) wishing to diversify constitutes a driving element and guarantees the industrial vision of the committed works.</p>
Partners	<p>CEA - LITEN (coordinator) RHODIA R&T NORDON CRYOGENIE INPT-UMR_5503 - LGC-RMS-CG UN-UMR_6607 - LTN</p>
Contact point	<p>M. Patrice TOCHON - CEA - LITEN patrice.tochon@cea.fr</p>
ANR funding	<p>708135 euros</p>
Start date and duration	<p>01/12/2007 - 36 months</p>
Contract	<p>ANR-07-CP2D-17</p>

Program: « Green Chemistry and Processes for a sustainable development»

Edition 2007

Title	SYSBIOX - Approche systémique basée sur des techniques in vitro et in silico innovantes pour prédire la toxicité de substances
Abstract	<p>Evaluation of chemical toxicity is currently time consuming, expensive and raise ethical questions since they require in vivo animal studies on a large scale. In the context of the European REACH program, the development of alternative methods based on in vitro and in silico approaches has been enhanced.</p> <p>In SYSBIOX, we propose to develop such a methodology to evaluate the toxicological risk, based on three innovating technologies: bioartificial organs, metabonomic and physiological modeling. The components of the methodology will be able to reproduce or model the biodistribution and/or the mode of action of a substance on an organism or on the target cells. In SYSBIOX, we will focus on the hepatotoxicity and the nephrotoxicity by developing a bioartificiel liver and a bioartificiel kidney. The integration of these three technologies will allow the transposition of the in vitro results to in vivo situations.</p>
Partners	INERIS - TOXI-CB (coordinator) CNRS-UMR_6600 - LBGB ENSL-UMR_5182 - LC-CRMN
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ANR funding	486266 euros
Start date and duration	01/12/2007 - 36 months
Contract	ANR-07-CP2D-18

Program: « Green Chemistry and Processes for a sustainable development»

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Title	XYLOTECH - Valorisation des déchets de scierie et des ressources sylvicoles sous-exploitées en Guyane Française - évaluation du potentiel industriel des molécules extractibles
Abstract	Amazonian rain forest predominates in French Guiana, making the region very peculiar amongst French regions. Here, forest is both a living environment and a source of development, and supplies inhabitants and industries with renewable resources. Today in French Guiana, approximately 60.000 m ³ of exceptionally long-lasting woods are exploited each year, yielding the same amount of wood wastes. On the contrary, wastes resulting from skidding tracks in commercial forests are very diverse. Which molecules are responsible for the exceptional long-lasting properties of Amazonian woods, and do these extractives have any industrial potential? On the other hand, is it possible to use the numerous wood species cut and not exploited in commercial forest? We propose to evaluate the industrial potential of Amazonian woods extractives taking into consideration two possible outlets: wood treatment products from the large amounts of durable wood wastes generated in sawmills, and perfumery products in order to address the issue of botanically diverse forest wastes valorization.
Partners	UAG-UMR_8172 - UMR_ECOFOG (coordinator) KLR CIRAD - UR_40 ONF IRD-US_084 - BHG SYLVESENCE
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ANR funding	523012 euros
Start date and duration	01/01/2008 - 36 months
Contract	ANR-07-CP2D-19