



PROGRAMUL DE COOPERARE ELVEȚIANO-ROMÂN
SWISS-ROMANIAN COOPERATION PROGRAMME

New catalytic route from biomass waste to fuel

Starting Date 01.01.2013

Duration 36 Months

Discipline Chemistry

Main Goals

1. To establish a new route to valorize lignin.
2. To catalyze depolymerization of lignin under mild conditions coupled with catalytic acylation of the resulted fragments.
3. To synthesize novel heterogeneous catalysts (based on nano-functionalized structures) to depolymerize lignin and acylate the resulted fragments.
4. To exhaustively characterize the catalysts.
5. To establish an analytic methodology to quantitatively evaluate lignin, its degradation and its reaction products.

Activities

1. Establishment of an analytic methodology for the quantitative evaluation of lignin fragmentation products.
2. Synthesis of novel heterogeneous catalysts (based on nano-functionalized structures) for depolymerization of lignin and acylation of the resulted fragments
3. Catalytic depolymerization of lignin under mild conditions coupled with catalytic acylation of the resulted fragments
4. Exhaustive characterization of the catalysts

Expected results

1. Nano-structured heterogeneous catalysts for fragmentation of lignin
2. Nano-structured heterogeneous catalysts for fragmentation coupled with acylation
3. Optimized conditions for catalytic fragmentation of lignin under mild conditions and
4. Optimized conditions for synthesis of fuels
5. Heterogeneous catalysts for alkylation
6. Oral presentations in important conferences
7. Papers in high impact factor journals.
8. A PhD thesis

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