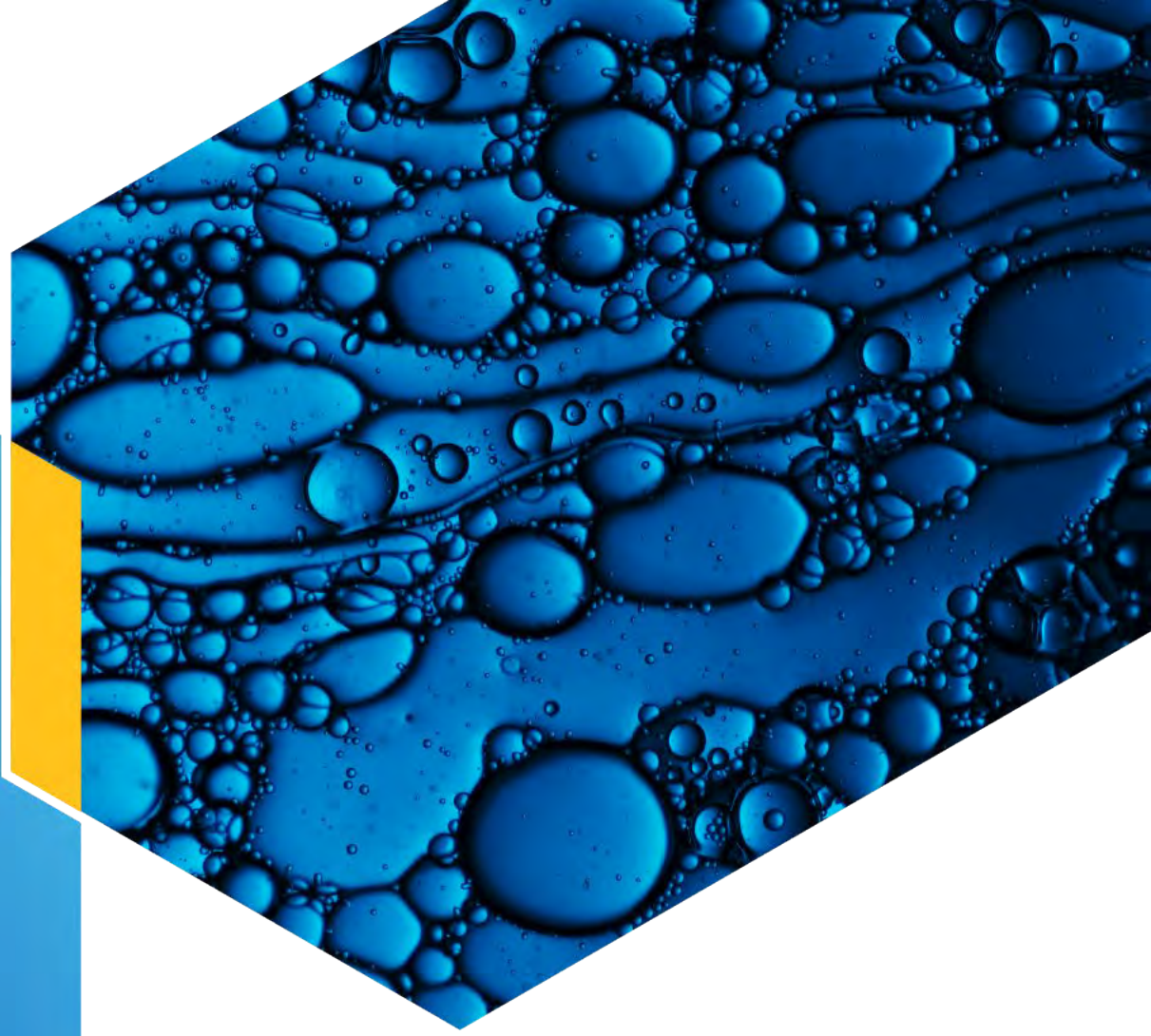
Meet the Database – NTIS

Jim Brown



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Content and Coverage

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Search Tips

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NTIS Content and Coverage

- NTIS is produced by the National Technical Information Services
  - Agency within U.S. Department of Commerce
- Over 3M records including bibliographic information, indexing, and an abstract in English
- Primary mission of NTIS is to collect and organize scientific, technical, engineering and business information generated by U.S government-sponsored research and development
- Includes value-add controlled terms, classification codes, CAS REGISTRY numbers, and physical property fields

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Where does NTIS's information come from?

- Mainly technical reports of U.S. Federal Government Agencies, plus conference proceedings, journal articles and theses
- U.S. Government inventions available for licensing
- Unrestricted reports on research, development, and engineering projects, sponsored by U.S. and non-U.S. governments
- Coverage from 1964-present
- Updated weekly

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NTIS Basic Index Searching

- Title, abstract, controlled terms and CAS REGISTRY Numbers
- Consider left and right truncation

```
=> S BIOFUEL?

L1          1084 BIOFUEL?

=> S ?BIOFUEL?

L2          1086 ?BIOFUEL?

=> S L2 NOT L1

L3             2 L2 NOT L1
```

```
=> D KWIC 1-2


L3      ANSWER 1 OF 2 NTIS COPYRIGHT 2021 NTIS on STN.
AB      The use of metabolic engineering as a tool for production of bio
        chemicals andbiofuels requires profound understanding of cell
        metabolism. The pathways for themost abundant and most important hexoses
        have already been studied quiteextensively.  .  .

L3      ANSWER 2 OF 2 NTIS COPYRIGHT 2021 NTIS on STN.
CT      *Fixed beds; *Gasification; *Biomass; *Foreign technology;
        *Agrobiofuels; Fuels; Power; Wastes; Requirements; Testing; Downdraft
        gasifiers; Updraft gasifiers
TI      Development of Novel Fixed-Bed Gasification for Biomass Residues and
        Agrobiofuels. Research note.
```


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NTIS Controlled Term Searching

- NTIS Controlled terms don’t seem so ‘controlled’
- Search keyword in Basic Index to include but not limit to controlled terms

```
=> E BIOFUEL/CT 25

E1           2     BIOFRACTALS/CT
E2           2     BIOFRIENDLINESS/CT
E3          36 --> BIOFUEL/CT
E4           1     BIOFUEL ATJ FUELS/CT
E5           1     BIOFUEL BLENDS/CT
E6          10     BIOFUEL CELLS/CT
E7           2     BIOFUEL CO-PRODUCTS/CT
E8           1     BIOFUEL CONSORTIA/CT
E9           1     BIOFUEL INDUSTRIES/CT
E10          3     BIOFUEL INDUSTRY/CT
E11          1     BIOFUEL INNOVATION/CT
E12          1     BIOFUEL LOW LUBRICITY ENDURANCE TESTS/CT
E13          1     BIOFUEL METHODOLOGIES/CT
E14         12     BIOFUEL PRODUCTION/CT
E15          1     BIOFUEL SUSTAINABILITY/CT
E16          1     BIOFUEL TARGETS/CT
E17          1     BIOFUEL TAX CREDITS/CT
E18          1     BIOFUEL-DIESEL FUEL BLENDS/CT
E19        474     BIOFUELS/CT
E20          1     BIOFUELS ASSESSMENT/CT
E21          4     BIOFUELS CORRIDOR/CT
E22          1     BIOFUELS CORRIDOR(I-65)/CT
E23          1     BIOFUELS FEEDSTOCK DEVELOPMENT PROGRAM/CT
E24          5     BIOFUELS INDUSTRY/CT
E25          1     BIOFUELS MANUFACTURING/CT
```

```
=> S BIOFUEL?/CT

L4          549 BIOFUEL?/CT

=> S ?BIOFUEL?/CT

LEFT TRUNCATION IGNORED FOR FILE 'NTIS'
L5          549 BIOFUEL?/CT
Left truncation is not valid in the specified search field in the
specified file.  The term has been searched without left truncation.
Examples: '?TERPEN?' would be searched as 'TERPEN?' and '?FLAVONOID'
would be searched as 'FLAVONOID.'
```

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NTIS Classification Codes

- 39 categories
  - Divided into subcategories
- Three characters – two number characters and one alpha character
  - Ex. 70A, 48D
  - Numbers represent category, alpha represents subcategory
- Used exclusively since July 1986

Search Example

- Find non-patent literature pertaining to lignocellulose used to produce biofuels
  - Databases searched were HCAPlus, Compendex, Inspec and NTIS

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Unique HCAPlus record

L6 ANSWER 1 OF 10437 HCAPLUS COPYRIGHT 2021 ACS on STN DUPLICATE 1

AN 2021:1821510 HCAPLUS Full-text
TI Sustainable ecofriendly recruitment of bioethanol fermentation **lignocellulosic** spent waste biomass for the safe reuse and discharge of petroleum production produced water via biosorption and solid **biofuel** production
AU Nassar, Hussein N.; El-azab, Waleed I. M.; El-Gendy, Nour Sh.
CS Nasr City, Egyptian Petroleum Research Institute (EPRI), PO, 11727, Egypt
SO Journal of Hazardous Materials (2022), 422, 126845
CODEN: JHMAD9; ISSN: 0304-3894
DOI 10.1016/j.jhazmat.2021.126845
PB Elsevier B.V.
DT Journal; (online computer file)
LA English
AB Sustainable **lignocellulosic** spent waste rice straw (SWRS) from bioethanol prodn. inventively applied in this study to valorize petroleum prodn. produced water (PPPW). SWRS expressed efficient pollutant removal over a wide range of petroleum concn., temp., pH, salinity, and mixing rate reaching approx. 217 mg/g, within four hours contact time. Kinetic studies revealed a pseudo-second-order chemisorption process with a boundary layer control and 16.97 kJ/mol activation energy where the intra-particle diffusion was not the only rate regulatory step. Thermodn. studies revealed spontaneous, favorable, and endothermic adsorption, with a strong affinity between the SWRS and oil mols. Biosorption mechanism studies proved the enrollment of SWRS components' lignin, cellulose, and hemicellulose in the oil uptake with the predominance of chemisorption over physisorption onto the rough and highly porous SWRS surface. A single-stage batch biosorption process was designed based on the best fitted Langmuir adsorption isotherm and applied on a real PPPW sample. The Egyptian std. limits for safe industrial effluents discharge into marine environment with a concomitant decrease in scale formation precursors were achieved recommending its safe reuse for enhanced oil recovery. Finally, for accomplishing zero-waste, SWRS disposed of PPPW treatment substantiated valorized solid **biofuel** with a sufficient calorific value 38.56 MJ/kg.
RE.CNT 101 THERE ARE 101 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

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Unique Inspec record

L6 ANSWER 6369 OF 10437 INSPEC COPYRIGHT 2021 IET on STN. DUPLICATE 13
AN 2021:20593028 INSPEC Full-text
DN 20593028
TI Microbial lipid production by the yeast Lipomyces starkeyi InaCC Y604 grown on various carbon sources
AU Juanssilfero, A.B.(1); Agustriana, E.(1); Andriani, A.(1); Fahrurrozi(1); Perwitasari, U.(1); Salsabila, P.(2); Sutrisno, A.(2)
CS (1)Indonesian Institute of Sciences (LIPI), Research Center for Biotechnology, Bogor, Indonesia; (2)University of Brawijaya, Department of Food Science and Technology, Brawijaya, Indonesia
EMAIL: ario002@lipi.go.id
SO IOP Conference Series: Earth and Environmental Science (2021), Volume 762, 012073 (8 pp.) p., 32 refs.
ISSN: 1755-1307
DOI: https://doi.org/10.1088/1755-1315/762/1/012073
Published by: IOP Publishing, United Kingdom
Conference: 7th International Symposium of Innovative Bioproduction Indonesia on Biotechnology and Bioengineering 2020 (ISIBIO 2020), Virtual Conference, Indonesia, 18 Nov 2020 - 20 Nov 2020
CY United Kingdom
DT Conference; Conference Article; Journal; Practical
FS INSPEC 1969-; A; B; E
LA English
ED Entered STN: 28 May 2021
Last updated on STN: 28 May 2021
AB The use of non-renewable fuels in the transportation sector boosts the development of renewable **biofuels**, such as biodiesel. However, crops-based biodiesel production can cause the increment of deforestation and greenhouse gas emissions. This circumstance motivates the development of oleaginous microorganisms as alternative raw materials to overcome these problems. Lipomycesstarkeyi is one of the potential oleaginous microorganisms due to its ability to produce higher lipid content. In addition, L.starkeyi is capable to grow in affordable carbon sources, such as **lignocellulose** and molases, which can reduce the production costs. The aim of this study is to determine the ability

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Unique Compendex record

L6 ANSWER 9113 OF 10437 COMPENDEX COPYRIGHT 2021 EEI on STN. DUPLICATE 1005
AN 2018-2705397702 COMPENDEX Full-text
TI Hybrid phenolic-inducible promoters towards construction of self-inducible systems for microbial lignin valorization
AU Varman Arul M.(1,2); Follenfant Rhiannon(1); Liu Fang(1); Davis Ryan W.(1); Lin Yone K.(1); Singh Seema(1,3,4)
Correspondence(s): Singh Seema(1)
CS (1)Biomass Science and Conversion Technology Department, Sandia National Laboratories, Livermore, United States, 94550
(2)Chemical Engineering, School for Engineering of Matter, Transport, and Energy, Arizona State University, Tempe, United States, 85287
(3)Joint Bioenergy Institute, Emeryville, United States, 94608
(4)Department of Bioproducts and Biosystems Engineering, University of Minnesota, St. Paul, United States, 55108
EMAIL: Arul.M.Varman@asu.edu; rifollenfant@gmail.com; fanliu@sandia.gov; rwdavis@sandia.gov; eric.yeyint@gmail.com; seesing@sandia.gov
SO Biotechnology for Biofuels (28 Jun 2018), Volume 11, Number 1, pp. 1-13, 57 refs.
ISSN: 1754-6834
DOI: 10.1186/s13068-018-1179-8
Published by: BioMed Central Ltd.
URL (Document): http://www.biotechnologyforbiofuels.com/
CY United Kingdom
DT Journal; Article
LA English
SL English
ED Entered STN: 10 Jul 2018
Last updated on STN: 10 Jul 2018
AB Background: Engineering strategies to create promoters that are both higher strength and tunable in the presence of inexpensive compounds are of high importance to develop metabolic engineering technologies that can be commercialized. **Lignocellulosic** biomass stands out as the most abundant renewable feedstock for the production of **biofuels** and chemicals. However, lignin a major polymeric component of the biomass is made up of aromatic units and remains as an untapped resource. Novel synthetic biology tools for the expression of heterologous proteins are critical for the effective engineering of a microbe to valorize lignin.

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Unique NTIS record

L6 ANSWER 10391 OF 10437 NTIS COPYRIGHT 2021 NTIS on STN.
AN 20160004188 NTIS Full-text
DN PB2017-102460
TI Bioconversion of Woody Biomass to **Biofuel** and Lignin Co-Product Using Sulfite Pretreatment to Overcome the Recalcitrance of **Lignocelluloses** (SPORL). Forest Service general technical rept.
AU Zhu, J. Y.; Zhang, C.; Gleisner, R.; Houtman, C. J.; Pan, X.
CS Forest Products Lab., Madison, WI (017958000)
NR PB2017-102460; FSGTR-FPL-240
SO (Sep 2016), 34 p.
CY United States
DT Report
LA English
ED Entered STN: 19 Aug 2021
Last updated on STN: 19 Aug 2021
AB Sulfite pretreatment to overcome the recalcitrance of **lignocelluloses** (SPORL) promises to provide efficient bioconversion of woody biomass into bioethanol and lignin co-products. Results from several laboratory and pilot-scale studies are presented to demonstrate SPORL performance, with comparisons to competing technologies. Excellent ethanol yields of up to approximately 80% theoretical, based on glucan, mannan, and xylan content of wood, were achieved at titers over 40 g/L. This high productivity was accomplished using low cellulase loadings, 25 mL/kg wood, and without detoxification, solid-liquor separation, or supplementation of nutrients in fermentation. Lignin sulfonation from SPORL likely contributes to this high efficiency by reducing nonproductive binding of cellulase through electrostatic repulsion and reduced hydrophobic interactions between cellulase and lignin. Finally, a reaction-kinetics-based severity factor-the combined hydrolysis factor (CHF)-was developed to facilitate process scale-up and for determining optimum operating conditions for balancing sugar yield against sugar degradation.

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Controlled Term and Classification code display

```
=> D CT CC


L1      ANSWER 1 OF 1 NTIS COPYRIGHT 2021 NTIS on STN.
CT      *Wood products; *Woody biomass; *Bioconversion; *Sulfite pretreatment to
        overcome the recalcitrance of lignocelluloses (SPORL); *Combined
        hydrolysis factor (CHF); Biofuels; Pretreatments; Bioethanol;
        Fermentation; Performance; Laboratory studies; Ethanol yields; Lignin
        co-products; Sulfite pretreatment
CC      71R Wood & Paper Products; 97K Fuels; 97B Energy Use, Supply, & Demand
```

Note: Controlled terms with an asterisk in front of them are determined to be of the greatest importance in describing the subject content of a report.

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EXPAND and SEARCH Classification codes

```
=> E 71/CC 25

E1        2020      70G/CC
E2        2020      70G PRODUCTIVITY/CC
E3        8533 --> 71/CC
E4        8533      71 MATERIALS SCIENCES/CC
E5           4      710/CC
E6           4      710 GENERAL/CC
E7         652      71A/CC
E8         652      71A ABLATIVE MATERIALS & ABLATION/CC
E9        5087      71B/CC
E10       5087      71B ADHESIVES & SEALANTS/CC
E11       2875      71C/CC
E12       2875      71C CARBON & GRAPHITE/CC
E13      20508      71D/CC
E14      20508      71D CERAMICS, REFRACTORIES, & GLASS/CC
E15      14520      71E/CC
E16      14520      71E COATINGS, COLORANTS, & FINISHES/CC
E17      23394      71F/CC
E18      23394      71F COMPOSITE MATERIALS/CC
E19      11676      71G/CC
E20      11676      71G CORROSION & CORROSION INHIBITION/CC
E21       4909      71H/CC
E22       4909      71H ELASTOMERS/CC
E23       6428      71I/CC
E24       6428      71I FIBERS & TEXTILES/CC
E25      28387      71J/CC
```

```
=> E 25

E26      28387      71J IRON & IRON ALLOYS/CC
E27       5274      71K/CC
E28       5274      71K LUBRICANTS & HYDRAULIC FLUIDS/CC
E29      11662      71L/CC
E30      11662      71L MATERIALS DEGRADATION & FOULING/CC
E31       5537      71M/CC
E32       5537      71M MISCELLANEOUS MATERIALS/CC
E33      34781      71N/CC
E34      34781      71N NONFERROUS METALS & ALLOYS/CC
E35      12848      71O/CC
E36      12848      71O PLASTICS/CC
E37       2259      71P/CC
E38       2259      71P REFRACTORY METALS & ALLOYS/CC
E39       1542      71Q/CC
E40       1542      71Q SOLVENTS, CLEANERS, & ABRASIVES/CC
E41       6945      71R/CC
E42       6945      71R WOOD & PAPER PRODUCTS/CC
E43      14839      72/CC
E44      14839      72 MATHEMATICAL SCIENCES/CC
E45          5      720/CC
E46          5      720 GENERAL/CC
E47      29476      72B/CC
E48      29476      72B ALGEBRA, ANALYSIS, GEOMETRY, & MATHEMATICAL LOGIC/CC
E49      15233      72E/CC
E50      15233      72E OPERATIONS RESEARCH/CC
```

```
=> S 71/CC

L1          8533 71/CC

=> S 71?/CC

L2        171015 71?/CC
```

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Summary

- NTIS contains unique information compared to similar databases
  - Reports on U.S. government sponsored research
- Reloaded and up-to-date
- Keyword search options
- Classification codes and controlled terms
- Numeric Property Searching
  - HELP NPS

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Additional Resources

- NTIS user documentation from STN International
  - https://www.stn-international.com/en/database-summary-sheets/NTIS
- Numeric Property Searching documentation
  - https://www.stn-international.com/training-center/recorded-e-seminars/numeric-property-searching-stnext-case-studies-dwpi

Questions? Feedback?

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