Premier Biomedical and Life Science Content on New STN®

February 2015
Agenda

- New life science and biomedical content
- Search examples
- Tips for searching biomedical and life science databases
Applied life science database CABA is the leading source in the field of agriculture and related sciences

- **CABA (CAB Abstracts)** | > 7.8 million records | + 360,000/year
  - From 1973 to the present
  - Coverage includes agriculture, environment, veterinary sciences, applied economics, food science and nutrition
  - Journals sourced from more than 116 countries in more than 50 languages
  - Thesauri: controlled (CT), geographic terms (GT), organism name (ORGN)
  - Updated weekly
  - Produced by CAB International
CABA titles: English and „Roman“ script original languages

<table>
<thead>
<tr>
<th>Available Language</th>
<th>CABA field content</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EN</strong></td>
<td><strong>Original publication in Russian</strong></td>
</tr>
<tr>
<td></td>
<td>Development of procedures for carotenoid extraction and quantification in pulp of plant fruits.</td>
</tr>
<tr>
<td><strong>EN</strong></td>
<td><strong>Original publication in Spanish</strong></td>
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<tr>
<td></td>
<td>Carotenoid quantification in cocona (Solanum sessiliflorum Dunal) as a collection-time indicator.</td>
</tr>
<tr>
<td><strong>ES</strong></td>
<td><strong>Cuantificación de carotenoides en cocona (Solanum sessiliflorum Dunal) como indicador del momento de recolección.</strong></td>
</tr>
</tbody>
</table>

- **Title: English and Roman script**
  - Original source documents are written in Roman script and non Roman script
  - All CABA records contain an English title, either original or human translated
  - Non English original titles are only available for Roman script languages

  **Hint:** Search for all possible language versions in title or basic index

- **Abstract**
  - Cocona is a traditional Amazon fruit that has been the subject of few studies that have sought to establish the chemical differences resulting from the domestication process of the species or its impact on aspects such as use in the agroindustrial sector. ...

- **English language abstract**
  - > 90% of the records
  - British spelling
  - Amended if necessary
  - Human translated
CABA thesaurus supports access to controlled terminology for precise searches and comprehensive retrieval

- **Controlled Terms | CT**
  - Key aspects of the publication other than geographic, animal or plant terms

- **Geographic Terms | GT**
  - Countries and other geographic expressions

- **Organism Names | ORGN**
  - Animal and plant names, scientific names except for common livestock
  - As specific as stated in the text
**Broader Terms | BT**

- Up-posted general terms for specific expressions of **ORGN** and **GT** fields only
- Level of detail is lower, but results are more comprehensive
- Precise searches are still possible in separate thesaurus fields

**Thesauri in ORGN and GT also support comprehensive retrieval of indexed terms**

**To retrieve all entries in a generic search, look for terms in the Basic Index**
CABICODES (CC) are used to index broad concepts

- 23 major sections
  - Each section is split up in subcategories
- All explicitly discussed subjects are indexed with Cabicodes
- Codes typically index subjects difficult to describe with keywords
  - Added to the existing indexing described before

<table>
<thead>
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<th>Code</th>
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<td>forestry forest products and agroforestry (general)</td>
</tr>
<tr>
<td>kk100</td>
<td>forests and forest trees (biology and ecology)</td>
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<tr>
<td>kk110</td>
<td>silviculture and forest management</td>
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<td>forest products and industries (general)</td>
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<td>kk540</td>
<td>non-wood forest products</td>
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<td>kk600</td>
<td>agroforestry and multipurpose trees community farm and social forestry</td>
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<td><strong>Classification Code:</strong></td>
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<td>MM120 Aquaculture (Animals); QQ060 Aquatic Produce; QQ500 Food Composition and Quality</td>
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<td><strong>Broader Term:</strong></td>
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<tr>
<td></td>
<td>Oncorhynchus; Salmonidae; Salmoniformes; Osteichthyes;</td>
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</table>
CABA search example

Search Question:

- Retrieve some good hits for studies discussing the effects of carotenoids as feed additive on salmon fish meat during frozen storage.
Create the carotenoid concept with CABA controlled terms

Explore carotenoids in CT – select terms – search

Carotenoid expressions | Controlled terms
Organism name thesaurus contains the taxonomic hierarchy

Explore salmon – select terms – search in ORGN and BT

Carotenoids | Controlled terms

Salmonids | Organism and broader terms
Finally the search concepts are combined

Explore and search remaining concept: Frozen storage – combine all searches

- **L1**
  - Combined search: (("alpha-carotene" OR "astaxanthin" OR "beta-carotene" OR "canthaxanthin" OR "capsanthin" OR "carotenes" OR "carotenoids" OR "dehydroretinol" OR "lycopene" OR "phytoene" OR "phytofluene" OR "retinal" OR "retinoic acid" OR "retinoids" OR "retinol" OR "retinyl acetate" OR "retinyl esters" OR "retinyl palmitate" OR "violaxanthin" OR "xanthophyll" OR "xanthophylls" OR "zeaxanthin")/CT)
  - Controlled terms: Carotenoids
  - Organism names, broader terms: Salmonids
  - Frozen storage
  - All concepts combined: 14 answers

- **L2**
  - Combined search: ("Atlantic salmon" OR "Coregonus albula" OR "Coregonus clupeaformis" OR "Coregonus lavaretus" OR "Coregonus peled" OR "Coregonus" OR "Hucho hucho" OR "Hucho" OR "Oncorhynchus darki" OR "Oncorhynchus gorbuscha" OR "Oncorhynchus keta" OR "Oncorhynchus kisutch" OR "Oncorhynchus masou" OR "Oncorhynchus nerka" OR "Oncorhynchus tshawytscha" OR "Oncorhynchus" OR "Salmo trutta" OR "Salmo" OR "Salmonidae" OR "Salvelinus alpinus" OR "Salvelinus fontinalis" OR "Salvelinus leucomaenis" OR "Salvelinus namaycush" OR "Salvelinus" OR "Thymallus arcticus" OR "Thymallus thymallus" OR "Thymallus" OR "brown trout" OR "rainbow trout" OR "salmon" OR "trout")/ORGN, BT
  - Controlled terms: Salmonids
  - Frozen storage
  - All concepts combined: 33.538 answers

- **L3**
  - Combined search: (("cold storage" OR "frozen storage")/CT)
  - Controlled terms: Frozen storage
  - All concepts combined: 16.347

- **L4**
  - Combined search: L1 AND L2 AND L3
  - Controlled terms: All concepts combined
  - 14 answers
Evaluate value-add content of relevant hits

1. Journal 2013: *The effects of dietary supplement of Spirulina platensis on blood carotenoid concentration and fillet color stability in rainbow trout (Oncorhynchus mykiss).*
   
   To evaluate the effects of diets including 0, 2.5, 5, 7.5 and 10% Spirulina platensis powder on blood carotenoid concentration (BCC) and fillet color stability of rainbow trout (Oncorhynchus mykiss), a completely randomized experimental design was developed with five triplicate...

2. Journal 2013: *Effect of the antioxidant profile in the diet of farmed coho salmon (Oncorhynchus kisutch) on the nutritional value retention during frozen storage.*
   
   A commercial diet enriched with synthetic antioxidants (butylated-hydroxytoluene and ethoxyquin) (diet I) was fed to coho salmon (Oncorhynchus kisutch) and its effects were compared to two diets enriched with natural antioxidants, tocopherol-rich mixture (diet II) and tocopherol-rosemary extract mixture (diet III). ...

   
   This article discusses the pre-harvest parameters (emphasis on feed composition) impact on fish (salmon and trout) quality with focus on its oxidative stability during frozen storage.

4. Journal 2013: *Impact of dietary carotenoid and packaging during frozen storage on the quality of rainbow trout (Oncorhynchus mykiss) fed carotenoids.*
   
   BACKGROUND: The storage life of frozen salmonids is often limited primarily by oxidation and flesh discoloration due to carotenoid degradation. The objective of this research was to determine the...
FSTA is a value-add food database on STN

- **FSTA (Food Science Technology Abstracts)** | > 1.1 million records
  - From 1969 to the present
  - Coverage includes food science, food safety, food technology and food-related human nutrition
  - Contains patent and non-patent literature
  - Journals sourced from 53 countries in 29 languages
  - Thesauri: Controlled terms (CT)
  - Updated weekly
  - Produced by International Food Information Service (IFIS)
FSTA thesaurus supports access to controlled terminology for food sciences

- **Controlled Terms | CT**
  - All major concepts of the publication covered and sorted into multiple hierarchies
  - Focus on food-relevant aspects
  - Relational and associative hierarchies
- **Classification codes | CC**
  - Broad concepts, two levels, e.g.:
    - R Fish and marine products:
      - RA - General aspects
      - RC - Fish and fish products
    - Use truncation for searching, e.g. R#
Search Question:

• Retrieve some good hits for studies discussing the effects of carotenoids as salmon feed additive on fish meat colour
Use term explorer to access FSTA controlled term thesaurus

Explore concepts: Carotenoids, Salmon, Colour, Feeding – select terms – search in CT

Carotenoid expressions | Controlled terms
Continue exploring and finally combine search concepts

Explore and search remaining concepts: Salmon, Colour, Feeding – combine all searches

**Salmon or trout**  |  Controlled terms

**Colour**  |  Controlled terms

**Feeds or feeding**  |  Controlled terms

**All concepts combined**  |  39 answers
Check FSTA controlled fields to evaluate results
Premier biomedical and pharmacological databases deliver essential scientific content and broadens scope of search activities to new areas of interest

- **BIOSIS® (BIOSIS Previews®)** | >23 million records
  - 1926 to the present
  - Worldwide research literature on life sciences, biological and biomedical topics
  - Thesaurus: Controlled term (CT)
  - Updated weekly
  - Produced by Thomson Reuters
BIOSIS controlled term thesaurus identifies broad terms used in BIOSIS indexing

The BIOSIS controlled term thesaurus includes:
- Major Concepts
- Diseases
- Geographic Classifiers
- Methods and Equipment
- Chemical Roles

Organism names and classification codes can be found in the ORGN index.
BIOSIS is a good database for broad survey questions due to its general indexing policies

Search example: Find studies on fish exposed to pollutant polycyclic aromatic hydrocarbons in rivers or estuary environments.
Thesaurus auto-suggest helps find relevant terms

Check any terms you wish to add to the Query builder.
BIOSIS features geographic data such as rivers, oceans, deserts, mountain ranges, and countries.
Evaluate answers to find relevant organism name
View, save or export answers

1. Journal 2015. Development of water quality criteria for phenanthrene and comparison of the sensitivity between native and non-native species. Phenanthrene (PHE) is a priority polycyclic aromatic hydrocarbon (PAH) which is toxic to aquatic organisms. However, there has been no paper dealing with water quality criteria (WQC) of PHE due to the ...

2. Journal 2014. Effect-directed analysis of Elizabeth River porewater: developmental toxicity in zebrafish (Danio rerio). In the present study, effect-directed analysis was used to identify teratogenic compounds in porewater collected from a Superfund site along the Elizabeth River estuary (VA, USA). Zebrafish (Danio rerio) ...

3. Journal 2014. Responses of the European flounder (Platichthys flesus) to a mixture of PAHs and PCBs in experimental conditions. A multimarker approach was developed to evaluate the juvenile European flounder responses to a complex mixture of 9 polycyclic aromatic hydrocarbons (PAHs) and 12 polychlorinated biphenyls (PCBs). Exposure ...

4. Journal 2014. EROD activity and antioxidant defenses of sea bass (Dicentrarchus labrax) after an in vivo chronic hydrocarbon pollution followed by a post-exposure period. Chronic concentrations of polycyclic aromatic hydrocarbons (PAHs) have been commonly detected in international estuaries ecosystems. Reliable indicators still need to be found in order to properly assess ...

5. Journal 2014. Developmental toxicity of PAH mixtures in fish early life stages. Part II: adverse effects in Japanese medaka. In aquatic environments, polycyclic aromatic hydrocarbons (PAHs) mostly occur as complex mixtures, for which risk assessment remains problematic. To better understand the effects of PAH mixture toxicity ...

6. Journal 2014. Developmental toxicity of PAH mixtures in fish early life stages. Part I: adverse effects in rainbow trout. A new gravel-contact assay using rainbow trout, Oncorhyncus mykiss, embryos was developed to assess the toxicity of polycyclic aromatic hydrocarbons (PAHs) and other hydrophobic compounds. Environmentally ...

7. Journal 2014. EROD activity and cytochrome P4501A induction in liver and gills of Senegal sole Solea senegalensis from a polluted Huelva Estuary (SW Spain). EROD activity and induction cytochrome P4501A in liver and gills of Senegal sole, Solea senegalensis, from a heavy metal and PAH polluted estuary, was studied. Liver and gill CYP1A catalytic activity was ...

8. Journal 2014. Evaluation of the Ecotoxicity of Sediments from Yangtze River Estuary and Contribution of Priority PAHs to Ah Receptor-Mediated Activities. In this study, in vitro bioassays were performed to assess the ecotoxicological potential of sediments from Yangtze River estuary. The cytotoxicity and aryl hydrocarbon receptor (AhR)-mediated toxicity ...

9. Journal 2014. May sediment contamination be xenoestrogenic to benthic fish? A case study with Solea senegalensis. Within an environmental risk assessment framework of a moderately contaminated estuary (the Sado, SW Portugal), the present work intended to detect endocrine disruption in a flatfish, Solea senegalensis ...

10. Journal 2014. Water quality assessment of the Tubarão River through chemical analysis and biomarkers in the Neotropical fish Geophagus brasiliensis. The Tubarão River rises in Santa Catarina, Brazil, and has been historically affected by coal mining activities around its springhead. To evaluate its water conditions, an investigation regarding a possible ...

11. Journal 2014. Molecular responses of European flounder (Platichthys flesus) chronically exposed to contaminated estuarine sediments. Molecular responses to acute toxicant exposure can be effective biomarkers, however responses to chronic exposure are less well characterised. The aim of this study was to determine chronic molecular responses ...
MEDLINE® covers journal articles for all areas of biomedicine, biology and biochemistry

- **MEDLINE® | >24 million records**
  - Journal articles pertaining to all aspects of biomedicine, biology and biochemistry
  - 1946 to the present
  - Thesaurus: Medline Medical Subject Headings (MeSH)
  - Updated daily
  - Produced by the U. S. National Library of Medicine (NLM)
MEDLINE Medical Subject Headings (MeSH) thesaurus makes it easy to build comprehensive strategies.
Search with or without field code to test different strategies
Controlled Term Qualifiers can be added from the thesaurus.

To focus on records indexed with qualifiers, make sure the top level heading is not selected.
Qualifiers give highly focused answer sets

Select MeSH qualifiers from the MeSH thesaurus.

Alternatively, you can search 2 letter qualifiers with the (U) operator as shown below.
Premier biomedical and pharmacological databases deliver essential scientific content and broadens scope of search activities to new areas of interest

- **Embase™ | >29 million records**
  - Biomedical and pharmacological non-patent literature
  - 1947 to present
  - Thesaurus: Embase™ Emtree
  - Includes records for which Medline® is the source of the citation and abstract
  - Updated daily
  - Produced by Elsevier B. V.
Embase™ Emtree contains chemical names and medical concepts to enhance strategies.
Embase offers in-depth coverage of medical devices
Emtree Drug, Routes of Administration, and Disease subheadings are found in the Controlled Term (CT) index. Select link terms from the CT index look-up. Alternatively, you can search Emtree subheadings with the (U) operator: 
(ZOLEDRONIC ACID (U) AE)/CT 
(ZOLEDRONIC ACID (U) ADVERSE*)/CT
Limit terms can be searched in the CT field in MEDLINE and Embase

- Limit terms are used to search one or more areas of interest to give more precise results

<table>
<thead>
<tr>
<th>Limit Term</th>
<th>Operator</th>
<th>Example query</th>
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</thead>
<tbody>
<tr>
<td>MAJOR/CT</td>
<td>(U)</td>
<td>(LOW DENSITY LIPOPROTEIN (U) MAJOR)/CT</td>
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<tr>
<td>HUMAN#/CT</td>
<td>AND</td>
<td>(RABIES AND HUMAN#)/CT</td>
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<tr>
<td>FEMALE/CT</td>
<td>AND</td>
<td>(<em>ISCHEMIA</em> AND FEMALE)/CT</td>
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<td>MALE/CT</td>
<td>AND</td>
<td>DEPRESSION/CT (U) MAJOR/CT AND MALE/CT</td>
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<td>(NONHUMAN# OR ANIMAL#)/CT</td>
<td>AND</td>
<td>DRUG STABILITY AND (NONHUMAN# OR ANIMAL#)/CT</td>
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Searchable characters in new STN

<table>
<thead>
<tr>
<th>QUERY</th>
<th>Description</th>
<th>Database</th>
<th>Count</th>
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<tbody>
<tr>
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<td></td>
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<td>EMBASE</td>
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<td>MEDLINE</td>
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<td></td>
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<td>MEDLINE</td>
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</table>
Example titles from character search

**BIOSIS Results**

Comparative Analysis of **SSEA4(+)** and **SSEA4(-)** Mesenchymal Stem Cells Derived From Wharton’s Jelly of Umbilical Cord

**EMBASE Results**

**SSEA-4+** CD34-cells in the adult human heart show the molecular characteristics of a novel cardiomyocyte progenitor population

**MEDLINE Results**

Lung-derived **SSEA-1(+)** stem/progenitor cells inhibit allergic airway inflammation in mice.

Isolation and characterization of **SSEA-4-positive** subpopulation of human deciduous dental pulp cells.

**SSEA4-positive** pig induced pluripotent stem cells are primed for differentiation into neural cells.
Best Practices for substance searching in biomedical databases

Example:
Find references in BIOSIS, MEDLINE and Embase for capuramycin.
Best Practice: Use CN and RN Term Lists to search biomed databases

1. Create Term List
   - Create Term List from all REGISTRY results
   - CN: Chemical Name
   - RN: CAS Registry Number

2. Create Term List
   - Source Fields:
     - CN: Chemical Name
     - RN: CAS Registry Number
   - CAS Content:
     - REGISTRY (1)
   - Selected total: 1/100,000
   - List Name: CAPURAMYCIN CN AND RN

3. Create Term List
   - A Term List (Q50) with 6 terms has been created and will be appended to the query builder. Use the Manage Term Lists icon in the upper banner of the query builder to view additional information about all of your Term Lists.
Search the chemical name Q-list in the biomedical databases for precise or broad retrieval

Q-numbered Term Lists search the original field qualifier - CN and RN.

Q-numbers can be re-qualified to search other fields.
Hit term highlighting is an advantage of using chemical name term lists

A basic index search includes subject indexing as well as substance indexing fields.

CN and RN are only searched in substance indexing fields.
SUBX Cross File Search from biomedical files

- SUBX Cross File Search should include the originating database(s) as well as REGISTRY
CAplus is used as the default database for SUBX if the originating database is not included.
Additional database information in STN Help

EMBASE™ Available Fields

In the EMBASE database, the following fields can be searched.

- Fields marked with an asterisk (*) are Super Search Fields.
- Minimum stem length for Left or Right truncation is one character.
- Minimum stem length for Left and Right (SLART) truncation is one character for the BI field and three characters for all other fields.

(Updated February 2015)

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<th>Field Name</th>
<th>Field Code</th>
<th>Field Indexed As</th>
<th>Supported Proximity</th>
<th>Implied Proximity</th>
<th>Truncation</th>
<th>Search Example</th>
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<th>Sort</th>
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<td>- Or - Food (1W) Drug Adminstr^*/BI</td>
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</tbody>
</table>
Tips for searching biomedical and life science databases

• Make extensive use of auto-suggest in thesauri - especially for hyphenated terms
• Leverage thesauri terms across databases in the basic index, including DWPI and patent databases
• De-duplication is not currently available, but is planned for a future release
• Use database specific resources in Help
For more information ...

CAS
help@cas.org
Support and Training:
www.cas.org

FIZ Karlsruhe
helpdesk@fiz-karlsruhe.de
Support and Training:
www.stn-international.de