Survey of literature

- Before taking up the work on a research problem one has to know whether any work was reported on the same problem.
- If so he should know the extent to which the work was carried out.
- He should also know the work on the related field.
- Unless one knows the details regarding the work done in the earlier years in the same or related problem it is not possible to carry out the work.
- The total body of chemical/physics knowledge called the literature is located on the combined shelves of all the chemical and physics libraries in the world.
- The process of extracting the information about a research problem or a compound or a method etc., from the literature is called the literature survey.
- Literature survey is not difficult and nowadays the literature search has become very simple.
Sources of literature

The literature can be divided into two broad categories as

- Primary sources
- Secondary sources

Sources of literature – Primary sources

**Primary sources:** A primary source publishes the original results of laboratory investigations.

There are two kinds of primary sources:

- Journals
- Patents
**Sources of literature – Primary sources - Journals**

**Journals:**
All new work such as new
- preparation method
- new compound
- new technique *will be published first in journals.*

- There are thousands of journals that publish chemical and physics research papers in many countries and in many languages.
- They are published bimonthly, monthly, quarterly and semiannually.

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**Sources of literature – Primary sources - Journals…**

- **Some journal cover all fields of science**

  Examples: Science  
  Nature  
  Journal of Scientific and Industrial Research  
  Current Science  
  International Journal of Scientific Research  
  Research Insights
Some journals are restricted to Physics

Examples: Annals of Physics
International Journal of Pure and Applied Physics
Chemical Physics Letters
Biophysics Journal
Chemical Physics
Indian Journal of Pure and Applied Physics
American Journal of Physics
Turkish Journal of Physics

Sources of literature – Primary sources - Journals...

Some journals are restricted to Chemistry

Examples: Journal of Chemical Sciences
Langmuir
Journal of Chemical Research
Indian Journal of Chemical Technology
Journal of Organic Chemistry
Progress in Chemistry
Sources of literature – Primary sources - Journals...

• Some journals are restricted to Mathematics

Examples: International Journal of Applied Mathematics & Statistics
Mathematical Communications
Mathematical Research Letters
Advances in Theoretical and Mathematical Physics
Journal of Mathematical Research
Intnl. J. of Computational and Applied Mathematics

• Some journals are restricted to Computer Science

Examples: Journal of Universal Computer Science
Scientific computing
Advancing computing and information sciences
Journal of Brazilian computer society
A Networker’s journal
Computer information ad ethics
Journal of mathematics and mathematical sciences
Some journals are more specialized
Examples: Journal of Theoretical and Computational Chemistry
Communications in Theoretical Physics
Spectrochimica Acta
Journal of Proteome Research
Condensed Matter Physics
Macromolecules
Nano Letters
Molecular Pharmaceutics

Journals publish three types of publications:
- Papers
- Notes
- Communications
Papers: If the work is substantial and if it gives complete details with sufficient data it is published as a paper.

In *silico* characterization of antifreeze proteins using computational tools and servers


**Abstract:** A computer program is designed to search the protein sequence for homology and to identify the antifreeze protein sequences. The program is a useful tool for the identification of antifreeze proteins in different organisms.

2. Materials and methods

2.1 Antifreeze protein sequences

Antifreeze protein sequences were manually curated public proteome data from Swiss-Prot and used for the analysis. The sequences were aligned and compared using the sequences from Swiss-Prot.

Table 1. Annotation of antifreeze protein sequences

<table>
<thead>
<tr>
<th>Accession number</th>
<th>Swiss-Prot</th>
<th>E-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q01178</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q01179</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q01180</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q01181</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Q01182</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Results and discussion

The results of the analysis showed that the sequences of the proteins are similar and that the sequences are homologous. The sequences are aligned and compared using the sequences from Swiss-Prot.

Conclusions

The results of the analysis showed that the sequences of the proteins are similar and that the sequences are homologous. The sequences are aligned and compared using the sequences from Swiss-Prot.

References


Notes: A note is a brief paper published without a summary and abstract. It is more or less similar to paper in other aspects. It may be of small scope. Most journals no longer publish notes.
Communications: Communications are brief but significant. Communications differ from paper and notes in three respects.

1. They are brief, not because the work is of small scope, but because they are condensed. Usually they include only the most important experimental details or none at all.

2. They are of immediate significance. Journals that publish communications make every effort to have them appear as soon as possible after they are received. Some papers and notes are of great importance, and some are of lesser importance, but all communications are supposed to be of high importance.

3. Communications are preliminary reports, and the material in them may be republished as papers at a later date, in contrast to the material in papers and notes, which cannot be republished.

Sources of literature – Primary sources - Journals...

- Most of the journals publish articles in English language.
- Some journals publish articles in Russian, German, French and Chinese.
- They publish summaries in English.
- The second most important language in journals is Russian.
- For other language journals especially for Russian journals; English version is also available.
- All journals have abbreviations and these abbreviations are used when they are quoted as references.

Examples:

<table>
<thead>
<tr>
<th>Journal</th>
<th>Abbreviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indian Journal of Biochemistry</td>
<td>Indian J Biochem</td>
</tr>
<tr>
<td>Indian Journal of Biochemistry &amp; Biophysics</td>
<td>Indian J Biochem Bio</td>
</tr>
<tr>
<td>Indian Journal of Biotechnology</td>
<td>Indian J Biotechnol</td>
</tr>
<tr>
<td>Indian Journal of Chemical Technology</td>
<td>Indian J Chem Techn</td>
</tr>
<tr>
<td>Indian Journal of Chemistry</td>
<td>Indian J Chem</td>
</tr>
<tr>
<td>Indian Journal of Chemistry Section A</td>
<td>Indian J Chem A</td>
</tr>
<tr>
<td>Indian Journal of Chemistry Section B</td>
<td>Indian J Chem B</td>
</tr>
</tbody>
</table>
Sources of literature – Primary sources - Patents

**Patents:**
A patent is for a
- new technique
- new equipment
- new compound
- new method for making a known compound.

- The patents are very useful for the researchers / laboratory chemists and no literature search is complete that neglects the relevant patents.
- Chemical patents are part of chemical literature and both United States and foreign patents are regularly abstracted by Chemical Abstracts.
- Bound volumes of US patents are kept in a number of large libraries.
- Chemical Abstracts lists, in the introduction to the first issue of each volume, instructions for obtaining patents from 26 countries.

Sources of literature – Primary sources - Patents...

The patents are not as reliable as papers due to the following two reasons;

It is in the interest of the inventor to claim as much as possible.

- Therefore he or she may, for example, actually have carried out a reaction with ethanol and with 1-propanol, but will claim all primary alcohols, and perhaps even secondary and tertiary alcohols, glycols and phenols. An investigator repeating the reaction on an alcohol that the inventor did not use may find that the reaction gives no yield at all. In general, it is safest to duplicate the actual examples given, of which most chemical patents contain one or more.
- Although legally a patent gives an inventor a monopoly, any alleged infringements must be protected in court, and this may cost a good ideal of money. Therefore, some patents are written so that certain essential details are concealed or entirely omitted. Generally, chemical patents make full disclosure and claim only what was actually done.
Sources of literature – Secondary sources

Secondary sources: (indexes, abstracts, review articles, handbooks, catalogues etc)

- In the literature search, the original articles related to our problem cannot be directly referred as it is so vast.

- If there were no indexes, abstracts, review articles, handbooks, catalogues etc., the literature would unusable.

- The above sources which are used to refer the primary sources are called as secondary sources.

- In Physics, Chemistry and Computer science excellent secondary sources are available. Various kinds of secondary sources are discussed.

Sources of literature – Secondary sources

Various kinds of secondary sources:

Title Publications

- These publications list the title of current papers and this is useful for the chemists to read only the paper relevant to his work.

- There are two ‘title’ publications covering whole of chemistry.

Current contents Physical, Chemical & Earth Sciences:

- Began in 1967 and appear weekly, contains the contents pages of all issues of about 800 journals in chemistry, physics, earth sciences, mathematics, and allied sciences.

- Each issue contains an index of important words taken from the titles of the papers listed in that issue, and an author index, which, however, lists only the first-named author of each paper.

- The author’s address is also given, so that one may write for reprints.

- Current Contents is also available on computer discs, with “keywords”- words taken from the title and the interior of the paper.

- The discs can be searched for the keywords, allowing the user to find papers containing specific topics of interest.
**Sources of literature – Secondary sources**

**Chemical Titles, published by Chemical Abstracts Service**

- **Biweekly publication**, begun in 1961, lists, in English, all titles from more than 700 journals, all in the field of chemistry. The most useful aspect of this publication is the way the titles are given.

- They are listed in alphabetical order of every word in the title, except for such words as "the", "of", "investigation", "synthesis", etc. The indexed words are also called "keywords". (each issue contains a list of words prevented from indexing).

- Furthermore, at each listing are given the words that immediately precede and follow the keyword.

- In the second section of each issue (called the Bibliography) the complete titles and the authors are given.

- Incidentally, this Bibliography duplicates, for the journals they both cover, the listings in Current Contents, Physical, Chemical, & Earth Sciences, since the complete contents of journals are given in order of page number.

- Each issue of Chemical Titles has an author index, covering all authors.

- Author’s addresses are not given.

**Abstracts**

- Listing of title will not tell what is in the paper.

- Abstracts of the paper give the summary of the paper with other details and so they are very useful.

There are two publications covering the whole field of chemistry.

1. Referativnyi Zhurnal, Khimiya which began in 1953 is published in Russian language.

2. Chemical Abstracts.
### Sources of literature – Secondary sources

**Abstracts...**

- The Chemical Abstracts is published weekly by the American Chemical Society.
- It covers about 18000 journals.
- It gives the abstracts in English of every paper that contains chemical information regardless of original language.
- Chemical Abstracts is most useful because of its excellent indexes.
- Abstracts appear about 3-6 months after the appearance of original paper in journals. It also publishes chemical patents from 18 countries.
- The abstracts are grouped into 80 sections of which sections 21-34 pertains to organic chemistry.
- Each abstract contains,
  - Abstract number
  - Title of the paper
  - Author's names as given in paper
  - Abbreviated name of journal.
  - The year, volume, issue and page numbers
  - Language of the paper
  - A concise summary of the information in the paper

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**Sources of literature – Secondary sources**

**Abstracts...**

- From 1901 to 1961 there were annual indices.
- From 1962 semiannual indices covering the periods January to June and July to December were published.
- From 1907 until 1956 there were published additional 10 year indices.
- Since 1957 the cumulative indices appeared at 5 year intervals i.e. for 10 volumes (Two volumes per year from 1962).
- For each volume there is an index of subjects; authors, formula and patent numbers.
- In 1972 the subject index has been divided into two parts as chemical substance index and general subject index. The collective indexes are much more useful for literature search.
- Beginning with the eighth collective index period, CA has published on an index guide for each collective index.
- This publication gives structural formulas and / or alternate names for thousands of compounds, as well as many other cross-references.
Sources of literature – Secondary sources

General subject index
- It is used to search for topics such as oxidation, kinetics, fluorescence etc.
- If we are interested to find out the work done in the field of kinetics during the period 1972-1976 we can refer to the decennial subject index from 1972-1976 and we can see all the work on kinetics alphabetically.

Author Index
- If we are interested to find out the work done by a particular author for a period we can refer to author index.

Formula Index
- If we are interested to find out the carcinogenic activity of "Benzanilide" during the period from 1977-1981, we can refer to the decennial formula index of that period. The work done in this area will be listed.
- For each formula there may be a number of compounds (a number of isomers).

Chemical Substance Index
- This is more specific than formula index.
- We can refer by using the name of the compound.
- This is very useful to know the work done on a particular compound during a certain period.
- All the indices give only volume number and abstract number like 97, 489352.
- 97 is the volume number. 489352 is the abstract number.
- We can get the abstract with other details in volume 97.
- If we want complete information we may have to consult the original article published in the referred journal.
- Chemical Abstracts does not always use IUPAC nomenclature.
- All compounds are listed as derivatives of a parent compound.
- For example: 4-hydroxylbiphenyl is referred as Biphenyl-4-ol.
- Index guide, published every 18 months, give the nomenclature system used in chemical abstract.
- If the name is not clearly known, it is better to use formula index.
Sources of literature – Secondary sources

Beilstein

- Handbook *der organischen chemie* is commonly known as Beilstein after its first editor.
- It is a multivolume handbook that lists all known organic compounds.
- It gives the important historical notes, occurrence, formation, preparation, properties (physical and chemical, physiological), technical application of a compound.
- It also gives the analysis details like addition compounds and salts conversion products of unknown structure.
- The space devoted to any one compound varies from one line to several pages according to the available information and to its importance.
- It consists of a main series and four supplementary series (27 volumes)
- Main series antiquity – 1900 (i.e., upto 1909)
  - First supplement – 1910-1919
  - Second supplement – 1920-1929
  - Third supplement – 1930-1949 (in complete)
  - Fourth supplement – 1950-1959 // (incomplete)

Sources of literature – Secondary sources

Beilstein...

- The compounds are grouped into three major divisions.
  - Acyclic compounds 1-4
  - Carbocyclic compounds 5-16
  - Heterocyclic compounds 17-27
- There is a fourth minor division of carbohydrates, rubber like compounds and carotenoids contained in volumes 30 and 31.
- Each volume contains compounds with certain functional groups like alcohols, ketones etc.
- Every conceivable compound has been assigned a system number whether or not the compound has been reported in the literature.
- System number is the same for a particular compound in all the series.
- So once the system number is located in the main series, it is easy to refer the details of the compound in other series.
- The procedure used by Beilstein staff to assign the system number for a compound is sufficiently involved and it is difficult to find out the system number.
- Volume 28 and 29 are subject index and formula index respectively.
- The index in the fourth supplement gives page numbers in all the volumes.
Sources of literature – Secondary sources

Compendia and Tables of Information:

- **The Handbook of Chemistry and Physics**, CRC Press (called the "rubber handbook")
  - Revised annually (71st ed., 1990-91), is a valuable repository of data quickly found.
  - For organic chemists the most important table is "Physical Constants of Organic Compounds", which lists names, formulas, color, solubilities, and physical properties of thousands of compounds. However, there are many other useful tables also.

- **Handbook of Naturally Occurring Compounds**
  - Lists the names, formulas, color, solubilities, and physical properties of naturally occurring chemical compounds

Sources of literature – Secondary sources


- Merck Index is a good source of information about chemicals of medicinal importance.
- Many drugs are given three types of name: chemical name (which is the name an organic chemist would give it) generic name, which must be placed on all containers of the drug; and trade names, which are different for each company that markets the drug.
- For example, the generic name for 1-(4-chlorobenzhydryl)-4-methylpiperazine is chlorcyclazine.
Sources of literature – Secondary sources

Reviews

- A review article is an intensive survey of a specific field.
- A good review article is of enormous value, because it is a thorough survey of all the work done in the field under discussion.
- For example, one wants to collect the literature on a particular field up to 2002. If he gets a review on that field in the year 1995 then that review will cover all the work done in that field till 1994.
- There is no need for him to do literature survey in that field before 1994. It is enough if he goes through the work done in that field after 1994.
- If he is able to get recent review then it saves so much time for the research worker.

Sources of literature – Secondary sources

Annual Reviews: An annual review is a publication that covers a broad area but limits the period covered, usually to 1 year.

- The oldest annual review publication still publishing is Annual Reports on the Progress of Chemistry, published by the Royal Society of Chemistry (formerly the Chemical Society).
- This began in 1905 and covers the whole field of chemistry.
- Since 1967 it has been divided into sections.
- Organic chemistry is found in Section B.
- Because the number of papers in chemistry has become so large, the Royal Society of Chemistry publishes annual-review-type volumes of smaller scope, called Specialist Periodical Reports.
- Among those of interest to organic chemists are "Carbohydrate Chemistry" (vol.22 covers 1988); "Photochemistry" (vol.21 covers 1988-1989); and "General and Synthetic Methods" (vol.12 covers 1987).
Sources of literature – Secondary sources

General Treatises:
- There are a number of large-scale multivolume treatises over the whole field of organic chemistry or large areas of it.
- “Rodd’s Chemistry of Carbon Compounds”, edited by Coffey, Elsevier, Amsterdam, is a treatise consisting of five volumes, each of which contains several parts.
- Treatise Publications began in 1964 and is not yet complete.
- “Comprehensive Organic Chemistry”, Pergamon, Elmsford, NY, 1979, is a six-volume treatise on the synthesis and reactions of organic compounds.

Sources of literature – Secondary sources

Monographs and Treatise on Specific Areas
- Organic chemistry is blessed with a large number of books devoted to a thorough coverage of a specific area.
- Many of these are essentially very long review articles, differing from ordinary review articles only in size and scope.
- Some of the books are by a single author, and others have chapters by different authors but all are carefully planned to cover a specific area.
- Many of these books have been referred to in footnotes in appropriate places.
- There have been several series of monographs, one of which is worth special mention: "The Chemistry of Functional Groups", under the general editorship of Patai, published by Wiley, New York.
Sources of literature – Secondary sources

**Text Books**
- There are many excellent textbooks in the field of Physics and chemistry.
- Examples: 
  - Introduction to Condensed Matter
  - Equilibrium Statistical Physics
  - The Physics of Solar Cells
  - Modern techniques for circular Dichroism
  - Green Fluorescent Proteins
  - Practical Guide to Interpretive Near IR spectroscopy

Literature searching

- There are two ways of literature searching
  1. Literature search using printed materials
  2. Literature search using online search.

- The two basic types of literature search are
  1. Search for specific compounds
  2. Other types of searches
Literature searching - Literature Searching Using Printed Materials

- Specific Compound Search
- The information such as method of preparation, properties, spectral details of a specific compound can be obtained from several sources.
- Beilstein gives all these information of an organic compound reported already.
- In Beilstein we can get the information from 1929.
- The Beilstein reference i.e., system number is also mentioned in Aldrich chemical catalogue.
- Dictionary of organic compounds also gives the properties of the reported organic compound with the journal references.
- The information can be obtained from chemical abstracts.

Other searches
- There is no definite procedure for making other literature searches such as mechanism of a reaction, kinetics of a reaction, excited state properties of some organic compounds etc. using printed materials.
- For this type of search Monographs, Treatise on specific area, Reviews, etc. will be very useful.
- For example one wants to collect the literature on the excited state acidity constants of organic compounds he can refer to a review on this topic.
- If he comes across a paper on this he can get a number of references from that paper and he can further go into the references and get more references in each reference paper.
- In most of the papers the review are also cited.
- A review written in 1995 will have the literature from the year in which work started till the beginning of 1994.
- The subject index of the CA can also be used for search on a specific subject, But it will be a time consuming process.
Literature searching – Online searches

- Online Searches
  
  A search through a database using a computer is called online search.  
  The search is very quick and can cover a broad area.
  
  A number of databases in chemistry is available from several organization. The most important organization STN international (The Scientific and Technical Information Network) has dozens of databases and is available in many countries.
  
  STN charges for each use depending on which databases are used, for how long and what kind of information is required.
  
  In STN the same command language is used for all databases.

CA online search (available one from 1967)

- CA online has to major files
  - CA file
  - Registry file.

- CA file
  - This file is accessed with the command FILE CA.
  - Once in the file, the user uses the command SEARCH (or SEA or S) to look for references to specific terms.
  - For example, one may type SEA SEMIPINACOL. On the screen will appear something like **L1 4 Semipinacol**.
  - This system told us there were four abstracts for this term.

- **Online searching is faster than searching the printed CA, but gives us essentially the same information.**
  - The scope of the online method is much greater than that, for it allows us to combine words, in a number of ways.
  - One such way is by the use of the terms AND, NOT, and OR.
  - The words AND, NOT, and OR are called Boolean operators.
Literature searching – Online searches

**Truncation symbol**

- Another important option is a truncation symbol.

- If we ask for NUCLEOPHILE we will find all entries that contain the term nucleophile, but not those that contain a different form of this term, e.g., nucleophilic.

- We can take care of this by using NUCLEPHILE? as a search term instead of NUCLEOPHILE.

- This will retrieve all terms that start with the letters NUCLEOPHILE, no matter what other letters follow, thus retrieving nucleophile, nuclephilicity, nucleophiles, etc., as well as nucleophile.

- The question mark is one of several truncation symbols, each of which serves a different function.

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**The Registry File**

The Registry file is entered with the command FILE REGISTRY.

- The Registry File uses the same commands (including Boolean) as the CA File, but instead of displaying abstracts and bibliographical information, it displays information about compounds.

- Its most useful feature is that it allows the user to build a structure, and then gives information about compounds that posses that structure, even if the structure is only part of a larger structure.

**Other databases carried by STN are**

**Beilstein**

CAS REACTS (from 1985) – If the starting compound and products are specified by giving Registry Numbers, the system tells whether the transformation has been reported in the literature.

CJACS – (From 1982) gives all papers published in about 20 journals published by American Chemical Society.

Similarly Journals published by Elsevier, VCH, Royal Society of Chemistry are also available in their websites.
Literature searching – Online searches

A website called www.chemweb.com is available and if a person register in chemweb as a member he can access most of the chemistry journals. It gives the contents of all these journals and the abstract can be downloaded. To see the full text he or the institution should subscribe for www.sciencedirect.com

The search engines

www.google.com
www.altavista.com
www.yahoo.com
www.elsevier.com
www.springer.com also can be used for literature search.

Literature searching – National Center for Science Information (NCSI)

• In India "National Center for Science Information (NCSI)" at Indian Institute of Science was started by University Grants Commission, New Delhi.
• NCSI provides online search service on a cost basis.
• NCSI is on-line with 600 international databases.
• Chemical Abstracts is one of the important database provided by NCSI.
• One can carryout exhaustive searches with high precision and retrieve a greater number of references to documents having a high degree of relevance than those obtainable through manual search techniques.
Literature searching – Other Information services from (NCSI)

Current Awareness Service (CAS)
CAS is an easy-to-scan monthly alerting service, listing articles newly published in your field.

CD-ROM Database Service (CDRS)
CDRS is a retrospective search carried out on a few bibliographic databases, which NCSI maintains in Compact Disk Read-Only Memory (CD-ROM) form.

Document Delivery Service (DDS)
DDS is for obtaining photocopies of papers usually cited in services provided by NCSI.

Numeric Data Source Service (NDSS)
NDSS provides details of numeric data centers where data or factual information is available for any research field.

For details write to: The Chairman, National Centre for Science Information, Indian Institute of Science, Bangalore 560 012.

Literature searching – Science citation Index

- Science citation index differs from other indexes.
- Before we refer science citation index we should understand the principle of citation indexing.
- In scientific papers we get a list of references at the end. The references in papers are used for further reading. These references are listed to substantiate a statement, to show the original description of a method used or to point out other papers on the same subject.
- There is a direct subject relationship between the paper we are reading and those it cites. These references have been published earlier and we refer to these earlier papers for more information.
- Science citation index enable this process to be reversed. It gives a list of all papers in a given year that have cited a given paper, patent or book. It enables the user to search forward from a given paper or patent rather than backward, as is usually the case i.e. the reader can take an early reference which he knows to be interest and to locate the later papers which have cited it.
- It consists of three separate but related indexes:
  - Citation index
  - Source index
  - Permuterm subject index.
The method of using science citation index can be understood by an example.


"Nonlinear Structure – Reactivity Correlations. The Reactivity of Nucleophilic Reagents toward Esters".

We usually search for earlier papers from the references of the paper.

But this paper will not help us to get later papers in this subject or field.

The citation index of SCI lists all papers, patents, books which cited this paper in a given year or 2 month period.

For example column 43901 of the 1989 citation index shows that the Jenks paper was cited as a footnote in 16 papers published in 1989.

It is reasonable to assume that most of the papers that cited Jencks paper were on closely related subjects.

One can broaden the search by consulting SCI for papers that cited these 16 papers and so on.

One can get the list of papers that cited the original paper for a period from 1969 to till date.

The arrangement of cited papers is alphabetical by cited first author and then by cited year.

SCI is interdisciplinary. It covers about 3200 journals in all fields of science.

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Source Index

- The source index is similar to CA author index.
- It lists the titles, journal details of all papers published by a given author during the 2 month period or year. All authors are listed.

Corporate Index

- Lists all publications that have been published from a given institution during the period by first author.

Permuterm Subject Index

- This index alphabetically lists every significant word in the titles of all papers published in that year or bimonthly period, paired with all other significant words in the same title.
- For example a title with 5 significant words appears at 20 places in the index.
- These pairs are printed out and are followed by authors names.
- The user then refers the source index to get full details.
Literature searching – How to locate journal articles

- After obtaining references from Beilstein, Science Citation Index, Chemical abstracts or from any other source one has to go through the original Journal article.
- The references give only the abbreviations of the journal and for some journals these abbreviations are familiar.
- If the abbreviation is not familiar then chemical abstract service source index (CASSI) has to be referred.
- For example CASSI (1989 edition) contains the names of all the journals covered by CA from 1907 to 1989.
- Once the complete title is known, the journal can be referred from the library.
- If the institution subscribes for science direct we can access the articles in most of the Chemistry or Physics Journals.
- There are some agencies such as INSDOC, New-Delhi which supply the Xerox copy of the journal article at a nominal cost.
- INSDOC has connection with the libraries of reputed institutions in India and foreign countries.
- National Centre for Science Information (NCSI) also has Document Delivery Service which supplies photocopies of the papers.
- If the articles are in recent Journals, we can get the reprint of the paper from the author.

Questions

1. How communications differ from paper?
2. Why the patents are not as reliable as paper?
3. What are title publications? Discuss the use of current contents?
4. Give the different indexes of chemical abstracts and discuss their use with an example.
5. Write an account of Beilstein.
6. How a specific compound search can be made using printed materials?
7. How CA online search can be used to search literature on specific terms?
8. What are Boolean operators? Discuss their usage in online search.
9. Illustrate the use of truncation symbol in online search.
10. How the papers of an author can be searched online?
11. Discuss how National Centre for Science information can be used for literature search.
12. Write an account of science citation index.
Good Luck!

The End

Dr. K. SIVAKUMAR
Department of Chemistry
SCSVMV University
chemshiva@gmail.com
+91 98423 61378