# Introduction

## 1. COVERAGE

The *Dictionary of Marine Natural Products* is a comprehensive database containing over 30,000 compounds. It is a subset of the *Dictionary of Natural Products* (DNP) database. DNP is an ongoing project based on a 25-year review of the natural product literature. For the present project, the subset of DNP entries referring to marine natural products were carefully checked and reviewed and enhanced with a considerable amount of additional information relating to their natural occurrence. Several careful reviews were also carried out to ensure that the coverage of marine natural products in the finished publication was as complete as possible.

The compounds present in the Dictionary have been classified under the following major headings, which are described in more in the **Structural Types** section below. (There are obvious overlaps between the categories.)

Aliphatic natural products
Carbohydrates
Oxygen heterocycles
Simple aromatic natural products
Terpenoids
Steroids
Aminoacids and peptides
Alkaloids
Polypyrroles

Biosynthetic information on these compound classes can also be found in the Structural Types section. Taxonomic information on the organisms and their metabolites is covered in the **Classification of Organisms** section.

In compiling the printed version and the CD-ROM, the primary literature has been reviewed up to mid-2006.

The definition of a marine natural product is imprecise. The coverage of this Dictionary in terms of 'mainstream' natural products is intended to be comprehensive and as far as can be determined by various cross-checks carried out in the later stages of compilation, it comes extremely close to achieving that aim. Natural products which may be considered marginal are present to a great extent, but to include every compound that might be found somewhere in the sea would be an unrealistic target. In particular, compounds of the following type may not necessarily be present:

(1) Biochemicals endogenous to the higher marine animals, e.g. bile acids of marine mammals, endocrine hormones of crustaceans.
(2) Microbial products isolated from organisms that are widespread on both sea and land and have in fact been isolated from a marine-related source, e.g. an antibiotic from *Streptomyces* harvested from driftwood.
(3) Natural products of a 'terrestrial' type isolated from plants and animals in marginal environments, e.g. mangrove saltmarshes, may not be fully covered.
(4) Widespread polysaccharides, e.g. Amylose, Amylopectin.

All of these are included in the parent database *Dictionary of Natural Products*, available on DVD or online from CRC Press.

The coverage of lipids is extensive but not completely comprehensive. Numerous homologous series of fatty acids with different unsaturation patterns occur in both terrestrial and marine organisms, and there may not be an individual entry for every minor congener.

### 1.1 Natural products in the marine environment; general observations

The marine environment is an extremely complex one, showing immense biodiversity. Marine organisms produce all of the main type of natural product found among their terrestrial counterparts, but with a very different range of chemodiversity, so that, for example, the range of terpenoid skeletons includes some not found on land. Conversely, there are large groups of natural product found in some higher plants (e.g. many terpenoid skeletons; large categories of alkaloids) for which the enzymatic pathways have not evolved among marine organisms; higher plants are essentially absent from the sea.

### 1.1.1 Elemental composition

Many marine natural products contain the elements nitrogen, sulfur and halogens available in seawater, but with very uneven distribution across the phyla. A few compounds containing other elements such as arsenic and boron are also known, and also metal complexes (Ni, V, Zn). Vanadium bromoperoxidases are involved in the production of brominated marine natural products (but chlorinated metabolites arise by a different route). The proportion of nitrogenous compounds is much higher in cyanobacteria, bryozoans and ascidians, and the proportion of halogenated compounds is very high in the red algae (in marked contradistinction to the brown algae). More details are given in the sections below describing these organisms.

Kornprobst, J.M. *et al, Comp. Biochem. Physiol. B,* 1998, **119**, 1–51 (*rev, sulfates*)
Jiménez, C., *Stud. Org. Chem*., 2001, **25**, 811-917 (*rev, sulfur-containing marine natural products*)
Butler, A. *et al, Nat. Prod. Rep*., 2004, **21**, 180-188 (*vanadium bromoperoxidases*)

### 1.1.2 Interspecific interactions

It is now clear that, whilst many marine natural products are located in the tissues of the larger marine animals and plants, and are thus genuine natural products of those organisms, many others are produced by associated endo- and epibiotic microorganisms. Most marine microorganisms have not yet been successfully cultured, and definitive proof of origin is in most cases currently lacking. These products produced by symbiotic or epiphytic microorganisms appear in many cases to play a role in chemical defence mechanisms.

In the past five years, however, much progress has been made in assigning a definite microbial origin to many natural products. For example, in the case of **Swinholide A**, originally isolated from the sponge *Theonella swinhoei*, centrifugation of macerated cell samples from the sponge showed that the alkaloid was located within heterotrophic unicellular bacterial cells, was absent from the sponge cells themselves, but was also in the cells of the co-occurring cyanobacterium *Aphanocapsa feldmanni* also present. More recently, however, Swinholide A has been found in some cyanobacteria, and it has been speculated that it may be produced by one component of this symbiont system, and stored by another. In the case of the isocyano- and related metabolites found in marine invertebrate extracts, the isocyano group, possibly derived from cyanide ion, may be produced by an associated microorganism, while the terpenoid component derives from the animal. Genomic techniques are now being used; for example to show that **Patellamides A** and **C** are biosynthesised by a cyanobacterial symbiont of the originally cited source. Other natural products isolated from the higher marine organisms, however, have a known dietary origin, while a definite *de novo* biosynthesis of some mollusc products has been demonstrated.

It may be true in some cases that although a particular type of metabolite isolated from a higher animal has not yet been found among the lower forms such as cyanophytes forming part of the same ecosystem, this is merely an accident of the search process.

Haygood, M.G. *et al, J. Mol. Microbiol. Biotechnol*., 1999, **1**, 33–43 (*rev, microbial symbionts*)
Paul, V.J. *et al, Nat. Prod. Rep.,* 2004, **21**, 189–209 *(rev, chemical mediation of interorganism interactions*)
Salomon, C.E. *et al, Nat. Prod. Rep*., 2004, **21**, 105–121 (*rev, microbial genetics and chemical diversity*)
Hildebrand, M. *et al, Nat. Prod. Rep*., 2004, **21**, 122–142 (*rev, symbiont genetics*)
Proksch, P. *et al, BIOforum Eur*., 2004, **8**, 44
Moore, B.S., *Nat. Prod. Rep*., 2005, **22**, 580–593; 2006, **23**, 615–629 (*rev, biosynth*)

## 2. ORGANISATION OF ENTRIES

The Dictionary is arranged alphabetically by entry name. Every entry is numbered to assist ready location. Many compounds are included as derivatives of main entry compounds but important derivatives have their own individual cross-referenced entries. Use of the CD-ROM indexes enables the rapid location of all compounds in the Dictionary by name or compound type, regardless of their location. Entries may sometimes contain data on natural products which are not of marine origin, but this is obvious from the context and may provide valuable links to relationships between marine and terrestrial sources. This is especially true of entries dealing with fungal metabolites (see the section dealing with fungi, below).

A representative dictionary entry is shown in **Figure 1.**

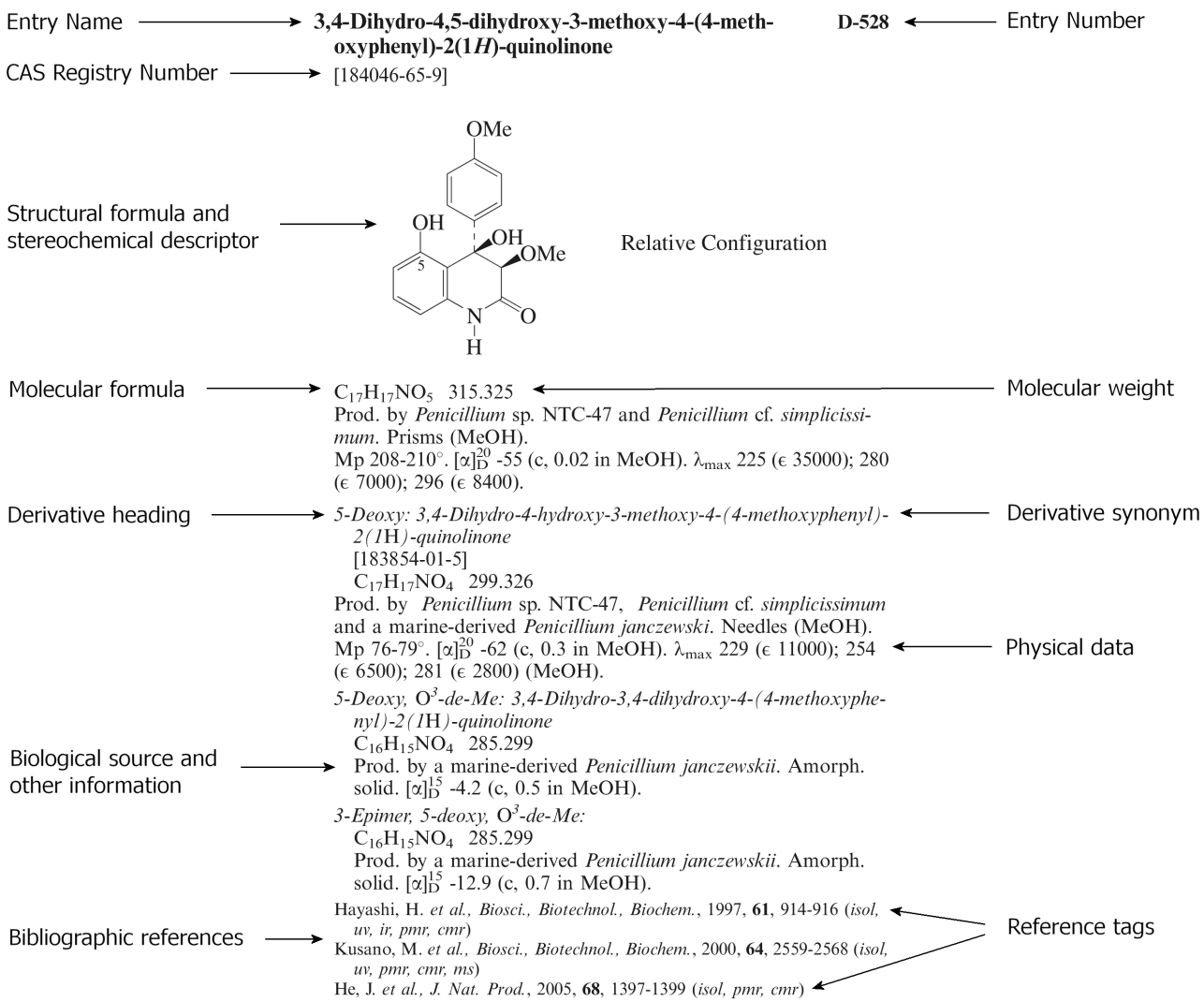


**FIGURE 1**

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### 2.1 Chemical names and synonyms

The Dictionary contains a wide range of synonyms which may be (a) those found in the primary literature, (b) *Chemical Abstracts* names, or (c) names added editorially to achieve as much consistency as possible with other closely related substances. Names corresponding to those used by CAS during the 9th and subsequent Collective Index periods (1973) are labelled 9CI Names. All important derivatives embedded within entries are named (but see comment on CAS nomenclature below). If a compound cannot be located immediately in the main body of the entries, it is important to use the indexes. The CD-ROM version of the Dictionary is much more highly indexed than the printed version.

The most authoritative current statement of good practice on natural product nomenclature is the document *IUPAC Recommendations 1999* (*Pure Appl. Chem.,* 1999, **71**, 587–643) the full text of which can be read on the *Dictionary of Marine Natural Products on CD-ROM* (access from the Windows® Start menu item or via the Help menu in the main program).

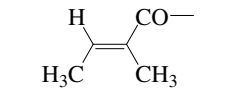
Some marine natural products have been given trivial names which duplicate those already in the literature, or which are simultaneously published for two or more non-identical substances. Where such a duplication is noticed this is indicated by the dagger symbol (‡) immediately following the name. Borderline cases, especially as between presence or absence of terminal e or suffix A or 1, are considered to constitute duplicates for this purpose.

### 2.1.1 Nomenclature

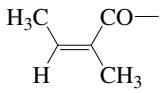
It is expected that this Dictionary will be used by a wide variety of scientists, not all of whom will be specialist organic chemists. Therefore compounds have been named so as to facilitate access to their factual data by keeping the nomenclature as simple as possible, whilst still adhering to good practice as determined by IUPAC (the International Union of Pure and Applied Chemistry). A great deal of care has been taken to achieve this aim as nearly as possible.

A much fuller description of the detailed nomenclature of individual classes of marine natural product is given in the **Structural Types** section. The following notes are of general applicability throughout the Dictionary.

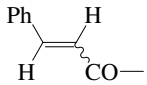
1. There are many examples in the primary literature of compounds being named in ways which are violations of good IUPAC practice, e.g. where the substituents are ordered non-alphabetically. These are not reported in their incorrect form but have been corrected.
2. The number of trivial names used for acylating substituents has been kept to a minimum but the following are used throughout the Dictionary.




Tigloyl = *E*-2-methyl-2-butenoyl




Angeloyl = *Z*-2-methyl-2-butenoyl




Cinnamoyl = 3-phenyl-2-propenoyl

3. Many other trivial appellations have from time to time appeared in the literature for other acyl groups (e.g. Senecioyl = 3-methyl-2-butenoyl, Feruloyl = 3-(4-hydroxy-3-methoxypheny1)-2-propenoyl or 4-hydroxy-3-methoxycinnamoyl).

The term **prenyl** for the common 3-methyl-2-butenyl substituent, $(H_3C)_2C{=}CHCH_2$-, is used throughout the Dictionary. Several other names for this substituent have from time to time been used and appear in the primary literature including the following:

3-Methyl-2-butenyl (systematic)
γ,γ-Dimethylallyl
3,3-Dimethylallyl
3,3-Dimethylpropenyl
Dimethallyl
Isoprenyl
Isopentenyl
β,β-Dimethylacrylyl

## 2.2 CAS REGISTRY NUMBERS

CAS numbers are identifying numbers allocated to each distinctly definable chemical substance indexed by CAS since 1965 (plus some retrospective allocation of numbers by CAS to compounds from earlier index periods). The numbers have no chemical significance but they provide a label for each substance independent of any system of nomenclature. They are extensively used for exchanging information between individuals and databases. The numbers take the form NNNNNN-NN-R, where the total number of digits is five or more and R is a check digit.

For practical purposes, CAS numbers have certain shortcomings arising from their free allocation, resulting in one substance having more than one potential number. Duplication may arise for one of several reasons to do with the detailed chemistry of the substance, for example tautomerism, solvent formation, partially unspecified stereochemistry. There are also replaced numbers. For this reason, Dictionary entries will often contain one or more *Additional CAS numbers* which may help the user to obtain further information about the substance, especially by online searching.

Clearly, the additional CAS numbers given in this Dictionary have to be used with care. Their inclusion in the entry is the result of an editorial decision by the Dictionary contributor that they refer to what is essentially the same substance, but this decision may be a subjective one. Care has been taken to ensure that the main CAS number given in this Dictionary for each substance is the correct one.

Further information on CAS number allocation policy can be obtained from CAS indexes or *The Organic Chemist's Desk Reference* (Chapman & Hall, 1995).

### 2.3 Structural formulae

Every attempt has been made to present the structures of chemical substances as accurately as possible according to best current practice and recommendations of IUPAC. As much consistency as possible has aimed at between closely-related structures. For example, all sugars are shown as Haworth formulae, and whenever possible in complex structures the rings are oriented in the standard Haworth convention so that structural comparisons can be quickly made.

### 2.4 Molecular formula and molecular weight

The elements in the molecular formula are given according to the Hill convention (C, H, then other elements in alphabetical order). The molecular weights given are formula weights (or more strictly, molar masses in daltons) and are rounded to three places in decimals. In the case of some high molecular mass substances, such as proteins, the value quoted may be that taken from an original literature source and may be an aggregate molar mass.

### 2.5 Physical data

The Dictionary gives the following physical characteristics of substances, when available: appearance, melting point, boiling point, optical rotation, density, refractive index, solubility, p*K*a. All of these fields are searchable by numerical value (including range searching) in the CD-ROM version of the Dictionary.

#### 2.5.1 Appearance

Organic compounds are considered to be colourless unless otherwise stated. Where the compound contains a chromophore which would be expected to lead to visible colour, but no colour is mentioned in the literature, the Dictionary entry will mention this fact if it has been noticed by the contributor. An indication of crystal form and recrystallisation solvent is often given but these are imprecise items of data; most compounds can be crystallised from several solvent systems and the crystal form often varies. In the case of the small number of compounds where crystal behaviour has been intensively studied (e.g. pharmaceuticals), it is found that polymorphism is a very common phenomenon and there is no reason to believe that it is not widespread among organic compounds generally.

#### 2.5.2 Melting Points and Boiling Points

The policy followed in the case of conflicting data is as follows:

a. Where the literature melting points are closely similar, only one figure (the highest or most probable) is quoted
b. Where two or more melting points are recorded and differ by several degrees (the most likely explanation being that one sample was impure) the lower figure is given in parentheses, thus Mp 139° (134–135°)
c. Where quoted figures differ widely and some other explanation such as polymorphism or incorrect identity seems the most likely explanation, both figures are quoted without parentheses, thus Mp 142°, Mp 205–206°
d. Known cases of polymorphism or double melting points are noted

Boiling point determination is less precise than that of melting points and conflicting boiling point data are not usually reported except when there appears to be a serious discrepancy between the different authors.

#### 2.5.3 Optical rotations

These are given wherever possible, and normally refer to what the Dictionary contributor believes to be the best characterised sample of highest chemical and optical purity. Where available an indication of the optical purity

(op) or enantiomeric excess (ee) of the sample measured follows the specific rotation value. For a recent discussion of the validity and applicability of these terms, see Gawley, R.E., *J. Org. Chem*., 2006, **71**, 2411–2416.

Specific rotations are dimensionless numbers and the degree sign which was formerly universal in the literature has been discontinued.

### 2.6 Spectroscopic data

Many Dictionary entries include ultraviolet spectra which are presented in the format:

[neutral] $\lambda_{max}$ 198(log ε 1.55); 224 (sh) (log ε 0.61); 241 (sh) (log ε 0.55)($H_2O$)(Berdy)

where ε is the absorption coefficient for a given UV maxima value ($\lambda_{max}$). A description of the solvent conditions used, if reported in the literature, is listed at the beginning and end of the UV data in parentheses. All peak absorptions cited are maxima unless otherwise described, e.g. shoulder/inflection (sh) and end absorption (end). In addition, UV data may be followed by the term 'Berdy' or 'DEREP' indicating from which database the data originated. The absence of these terms implies that the data were abstracted from the primary literature.

On the CD-ROM, all the $\lambda_{max}$ values are indexed in the UV Maxima field and can be searched for numerically including range searching. Similarly, the solvent data associated with the UV data are indexed in the UV Solvent field.

### 2.7 Hazard and toxicity information

#### 2.7.1 General

Toxicity and hazard information is highlighted by the symbol and has been selected to assist in risk assessments for experimental, manufacturing and manipulative procedures with chemicals.

The Publishers cannot be held responsible for any inaccuracies in the reported information, neither does the omission of hazard data in the Dictionary imply an absence of this data from the literature. Widely recognised hazards are included, however, and where possible key toxicity reviews are identified in the references. Further advice on the storage, handling and disposal of chemicals is given in *The Organic Chemist's Desk Reference*.

#### 2.7.2 RTECS® Accession Numbers*

Many entries in this Dictionary contain one or more RTECS® Accession Numbers. Possession of these numbers allows users to locate toxicity information on relevant substances from the NIOSH *Registry of Toxic Effects of Chemical Substances*, which is a compendium of toxicity data extracted from the scientific literature.

### 2.8 Bibliographic references

The selection of references is made with the aim of facilitating entry into the literature for the user who wishes to locate more detailed information about a particular compound. The contents of most references are indicated by reference tags (suffixes) indicating their content and in particular the stereoisomers and derivatives of the parent compound which they document. The number of references cited does not indicate the relative importance of a compound; one key recent citation may supersede a number of older ones.

Journal abbreviations generally follow the practice of the Chemical Abstracts Service Source Index (CASSI), except for a short list of very well known journals where the Dictionary gives shorter abbreviations to save space (e.g. *J.A.C.S.* instead of *J. Am. Chem. Soc.*)

#### 2.8.1 Further References

Further useful information on a variety of topics concerned with the structure, description, stereochemistry and nomenclature of organic compounds can be found in the *Organic Chemist's Desk Reference*.

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*RTECS® Accession Numbers are compiled and distributed by the National Institute for Occupational Safety and Health Service of the U.S. Department of Health and Human Services of The United States of America. 

## 3. INDEXES

There are three printed indexes:

1. **Name Index** which lists every compound name and synonym in the Dictionary
2. **Type of Compound index** listing all compounds given in the Dictionary organised by structural type
3. **Type of Organism index** listing all compounds according to the species from which they have been isolated.

The indexes refer to the entry number. Searches on all text and numerical indexes, as well as structure and substructure searching can be carried out on the CD-ROM version of the Dictionary. For information on the Type of Compound codes used in the Type of Compound Index, please see the **Structural Types** section.

## 4. ABBREVIATIONS

The following is a selection of the most common Database abbreviations used:

| **Abbreviation** | **Name** |
|---|---|
| [α] | specific rotation |
| abs config | absolute configuration |
| Ac | acetyl |
| acc | according |
| AcOH | acetic acid |
| $Ac_2O$ | acetic anhydride |
| alk | alkaline |
| amorph | amorphous |
| amt | amount |
| anal | analytical applications, analysis of detection |
| anhyd | anhydrous |
| aq | aqueous |
| BAN | British Approved Name |
| bibl | bibliography |
| biosynth | biosynthesis |
| Bp | boiling point |
| c | concentration |
| *ca* | (*circa*) about |
| cd | circular dichroism |
| CAS | Chemical Abstracts Service |
| chromatog | chromatography |
| cmr | carbon ($^{13}C$) nuclear magnetic resonance |
| CNS | central nervous system |
| col | colour, coloration |
| coml | commercial(ly) |
| compd | compound |
| conc | concentrated |
| config | configuration |
| conformn | conformation |
| constit | constituent |
| cryst struct | X-ray crystal structure determination |
| d | density |
| dec | decomposes, decomposition |
| degradn | degradation |
| deg | degree |
| deriv(s) | derivative(s) |
| detn | detection, determination |
| dil | dilute, dilution |
| dimorph | dimorphic |

| | |
|---|---|
| diss | dissolves, dissolved |
| dist(n) | distil, distillation |
| DMF | dimethylformamide |
| DMSO | dimethyl sulfoxide |
| ee | enantiomeric excess |
| epr | electron paramagnetic (spin) resonance |
| equilib | equilibrium |
| esp | especially |
| Et | ethyl |
| EtOAc | ethyl acetate |
| EtOH | ethanol |
| EtOH aq | aqueous ethanol |
| exp | experimental |
| FEMA | Flavor and Extract Manufacturers' Association |
| fl p | flash point |
| fluor | fluoresces, fluorescence |
| formn | formation |
| Fp | freezing point |
| g | gram |
| glc | gas liquid chromatography |
| Glc | β-D-glucopyranosyl |
| GRAS | Generally Recognised As Safe |
| ham | hamster |
| haz | hazard |
| hplc | high performance liquid chromatography |
| hydrol | hydrolyses, hydrolysed, hydrolysis |
| ihl | inhalation |
| ims | intramuscular |
| INN | International Nonproprietary Name |
| intermed | intermediate |
| ipr | intraperitoneal |
| ir | infra-red spectrum |
| isol(n) | isolation, isolated |
| isom | isomerism, isomers, isomerises |
| ivn | intravenous |
| JAN | Japanese Accepted Name |
| JMAF | Japanese Ministry for Agriculture, Forestry and Fisheries |
| LC | lethal concentration |
| LD | lethal dose: $LD_{50}$, a dose which is lethal to 50% of the animals tested |
| M | molecular weight (formula weight) |
| manuf | manufacturer, manufactured |
| max | maximum |
| Me | methyl |
| MeOH | methanol |
| $Me_2CO$ | acetone |
| MEL | maximum exposure limit |
| metab | metabolite, metabolism |
| misc | miscible |
| mixt | mixture |
| mod | moderately |
| Mp | melting point |
| ms | mass spectrum |
| mus | mouse |
| *n* | index of refraction, e.g. $n_D^{20}$ for 20° and sodium light |
| nmr | nuclear magnetic resonance spectrum (general) |
| obt | obtained |

| | |
|---|---|
| oc | open cup |
| occup | occupational |
| OES | Occupational Exposure Standard |
| op | optical purity |
| ord | optical rotatory dispersion |
| orl | oral |
| Ph | phenyl ($C_6H_5$) |
| pharmacol | pharmacology |
| pmr | proton ($^1H$) nuclear magnetic resonance |
| polarog | polarography |
| polym | polymerises, polymer |
| ppd | precipitated |
| ppm | parts per million |
| props | properties |
| purifn | purification |
| Py | pyridine |
| rbt | rabbit |
| ref | reference |
| resoln | resolution |
| rev | review |
| rt | room temperature |
| scu | subcutaneous |
| sepn | separation |
| skn | skin |
| sl | slightly |
| sol | soluble |
| soln | solution |
| solv | solvent |
| sp | species (singular) |
| spar | sparingly |
| spp | species (plural) |
| ssp | subspecies |
| subl | sublimation, sublimes |
| synth | synthesis |
| tautom | tautomerism |
| THF | tetrahydrofuran |
| tlc | thin layer chromatography |
| TLV | Threshold Limit Value |
| tox | toxicity |
| unsatd | unsaturated |
| USAN | United States Adopted Name |
| uv | ultraviolet spectrum |
| v | very |
| var | variety |
| vis | visible |
| vol | volume |

### 4.1 Reference tags

The following is a selection of the most common Reference Tag abbreviations used:

| **Abbreviation** | **Name** |
|---|---|
| abs config | absolute configuration |
| anal | analysis |
| bibl | bibliography |
| biosynth | biosynthesis |

| | |
|---|---|
| cd | circular dichroism |
| chromatog | chromatography |
| cmr | $^{13}C$ nuclear magnetic resonance spectrum |
| config | configuration |
| conformn | conformation |
| cryst struct | X-ray crystal structure determination |
| deriv(s) | derivative(s) |
| detn | determination, detection |
| dta | differential thermal analysis |
| glc | gas-liquid chromatography |
| hplc | high performance liquid chromatography |
| ir | infrared spectrum |
| isol | isolation |
| isom | isomerism |
| manuf | manufacture |
| metab | metabolism |
| ms | mass spectrum |
| nmr | nuclear magnetic resonance spectrum |
| occur | occurrence |
| ord | optical rotatory dispersion |
| pharmacol | pharmacology |
| pmr | proton ($^1H$) nuclear magnetic resonance spectrum |
| props | properties (chemical or physical) |
| Raman | Raman spectrum |
| resoln | resolution |
| rev | review |
| sepn | separation |
| struct | structure |
| synth | synthesis |
| tautom | tautomerism |
| tlc | thin layer chromatography |
| tox | toxicity |
| trans | transition(s) |
| uv | ultraviolet spectrum |
| uv-vis | ultraviolet visible spectrum |

## 5. THE DICTIONARY OF MARINE NATURAL PRODUCTS ON CD-ROM

The *Dictionary of Marine Natural Products* is published together with a fully searchable CD-ROM. Space considerations have precluded the inclusion of indexes other than the Name, the Type of Compound and the Type of Organism indexes in the hard-copy version. By contrast, the CD-ROM contains searchable indexes on the following 35 fields:

| | | | |
|---|---|---|---|
| Accurate Mass | Chemical Name | Molecular Weight | Supplier |
| All Entries | Density | Optical Rotation | Type of Compound |
| All Text | Development Status | Partition Coefficient (Calc.) | Type of Compound Words |
| Biological Source | Dissociation Constant | Percent Composition | Type of Organism |
| Biological Use/Importance | Hazard & Toxicity | References | Type of Organism Words |
| Boiling Point | Hazard Flag | Refractive Index | Use/Importance |
| Boiling Point Pressure | Ion Charge | Rotation Conditions | UV Maxima |
| CAS Registry Number | Melting Point | RTECS Accession No. | UV Solvent |
| Chapman & Hall Number | Molecular Formula | Source/Synthesis | |

In addition to searching the above text fields, it is possible to search on structure and substructure.

Once installed, a Help file providing additional information on data content and guide to searching is available from the Chapman & Hall_CRC folder in the Start Menu and from the Help menu on the CD-ROM.

When accessing the *Dictionary of Marine Natural Products on CD-ROM* the first screen that is obtained is the Search Form window (**Figure 2**).

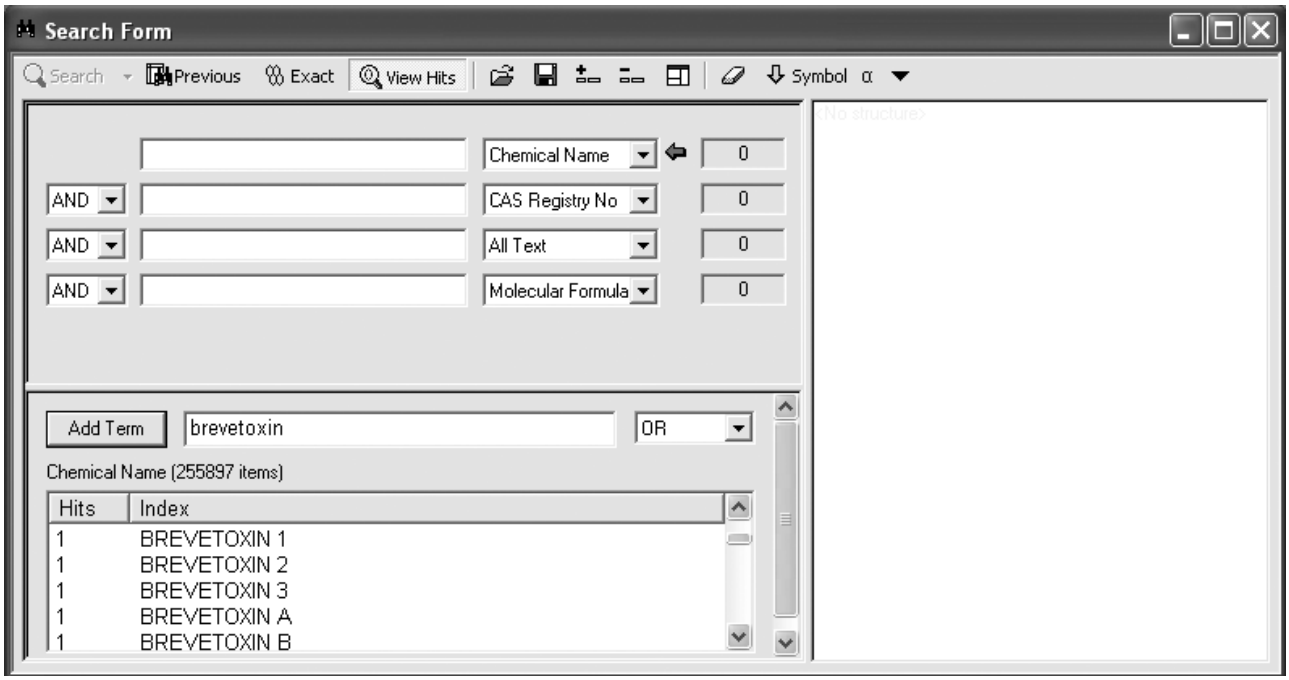


**FIGURE 2**

The Search Form window is split in to three panes:

1. Structure Search pane – allowing structure and substructure searching
2. Search Terms pane – search from one or more of the 35 available data/text fields
3. Index pane – displays the indexed terms within a selected field

From the Search Form window design your search profile using text, structure or text/structure searching. Once your search has been performed the resultant hits are listed alphabetically by chemical name in the Hit List screen. Clicking on any one of the hits in the hit list screen will result in that entry being displayed in the Entry Display screen (**Figure 3**).

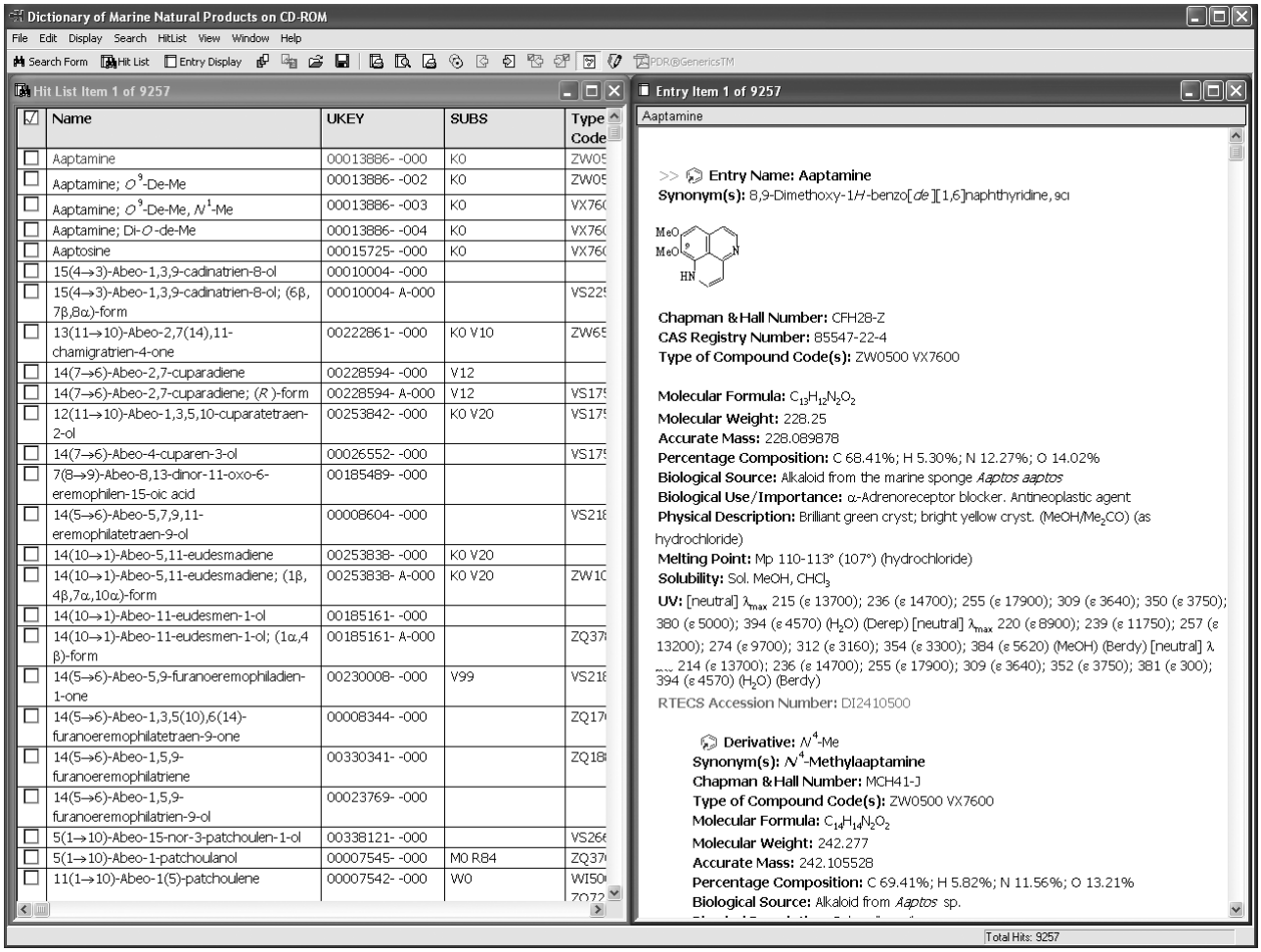


**FIGURE 3**

Any comments and suggestions for inclusion may be sent to:

The Editors, Dictionary of Marine Natural Products
Chapman & Hall/CRC
Albert House
1-4 Singer Street
London
EC2A 4BQ

Fax: +44 (0)20 7017 6747
Email: steve.walford@informa.com