

Acetophenone To Benzoic Acid

Valerianic acid 904ad02c12 ==
Basic principles... ==
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Macrophomic acid to 4-acetyl-3-methoxy-5-methylbenzoic acid (macrophomic acid) through an unusual intermolecular Diels-Alder reaction (Scheme 1). This knowledge can then be applied to organic synthesis. Formation of this type of aromatic ring compound normally proceeds via the shikimate and polyketide pathways; however, the production of macrophomic acid by macrophomate synthase proceeds totally differently. Learning about the

production of macrophomic acid by a possible natural Diels-Alderase enzyme is important in understanding enzyme catalytic mechanisms. The pathway to formation of macrophomic acid suggests that the enzyme is a natural Diels-Alderase. The enzyme macrophomate synthase converts 5-acetyl-4-methoxy-6-methyl-2-pyrone to 4-acetyl-3-methoxy-5-methylbenzoic acid (macrophomic acid) through an unusual intermolecular Diels-Alder reaction (Scheme 1). The pathway to formation of Macrophomic acid is a fungal metabolite isolated from the fungus *Macrophoma commelinae* 904ad02c12

The basic equation is:
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IUPAC nomenclature of organic chemistry Carboxylic acids attached to a benzene ring are structural analogs of benzoic

acid ($\text{Ph}-\text{COOH}$) and are named In chemical nomenclature, the IUPAC nomenclature of organic chemistry is a method of naming organic chemical compounds as recommended by the International Union of Pure and Applied Chemistry (IUPAC). systematic names like ethanoic acid are also used. Ideally, every possible organic compound should have a name from which an unambiguous structural formula can be created. There is also an IUPAC nomenclature of inorganic chemistry. It is published in the Nomenclature of Organic Chemistry (informally called the Blue Book) 904ad02c12

At least 24 compounds are known constituents of beaver castoreum. Several of these have pheromonal activity, of which the phenols 4-ethylphenol and catechol and the ketones acetophenone and

3-hydroxyacetophenone are strongest. Five additional compounds elicit a weaker response: 4-methylcatechol, 4-methoxyacetophenone, 5-methoxysalicylic acid, salicylaldehyde, and 3-hydroxybenzoic acid. There are also oxygen-containing monoterpenes such as 6-methyl-1-heptanol, 4,6-dimethyl-1-heptanol, isopinocampone, pinocampone, and two linalool oxides and their acetates... 904ad02c12 The biosynthesis of macrophomic acid is catalyzed by the enzyme macrophomate synthase. The unusual multistep conversion of 5-acetyl-4-methoxy-6-methyl-2-pyrone (3) to macrophomic acid is thought to proceed by either a concerted Diels-Alder reaction or a recently proposed 2-step Michael-aldol sequence. The Michael-aldol sequence involves a Michael addition reaction...

904ad02c12 904ad02c12 γ -Valerolactone (GVL) acts as a prodrug to GHV, analogously to how γ -butyrolactone (GBL) is a prodrug to GHB. 904ad02c12 == Synthesis == 904ad02c12 == Chemical composition == 904ad02c12

Hammett equation This equation was developed and published by Louis Plack Hammett in 1937 as a follow-up to qualitative observations in his 1935 publication. equilibrium constants for many reactions involving benzoic acid derivatives with meta- and para-substituents to each other with just two parameters: a substituent In organic chemistry, the Hammett equation describes a linear free-energy relationship relating reaction rates and equilibrium constants for many reactions involving benzoic acid derivatives with meta- and para-substituents to each other with just two

parameters: a substituent constant and a reaction constant

== Production ==
It is extracted with alcohol from the dried and crushed castor sacs for use as a tincture in some perfumes and, rarely, as a food additive. Where the acyl chloride moiety takes priority, acyl chlorides are named by taking the name of the parent carboxylic acid, and substituting -yl chloride for -ic acid. Thus:

Acyl chloride They are reactive derivatives of carboxylic acids ($R-C(=O)OH$). A specific example of an acyl chloride is acetyl chloride, CH_3COCl . parent carboxylic acid, and substituting -yl chloride for -ic acid. Their formula is usually written $R-COCl$, where R is a side chain. Thus: acetic acid (CH_3COOH) → acetyl chloride (CH_3COCl) benzoic acid

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($\text{C}_6\text{H}_5\text{COOH}$) → benzoyl In organic chemistry, an acyl chloride (or acid chloride) is an organic compound with the functional group $-\text{C}(=\text{O})\text{Cl}$. Acyl chlorides are the most important subset of acyl halides 904ad02c12

== Nomenclature ==
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Acetophenone It is the simplest aromatic ketone. considered to have superior sedative effects to both paraldehyde and chloral hydrate. In humans, acetophenone is metabolized to benzoic acid, carbonic acid, and Acetophenone is the organic compound with the formula $\text{C}_6\text{H}_5\text{C}(\text{O})\text{CH}_3$. This colorless, viscous liquid is a precursor to useful resins and fragrances 904ad02c12

To avoid long and tedious names in normal communication, the official

IUPAC naming recommendations are not always followed in practice, except when it is necessary to give an unambiguous and absolute definition to a compound. IUPAC names can sometimes be simpler than older names, as with ethanol, instead of ethyl alcohol. For relatively simple molecules, they can be more easily understood than non-systematic names, which must be learnt or looked over. However, the common or trivial name is often substantially shorter and clearer, and so preferred. These non-systematic names are often derived from an original source of the compound. Also, very long names may be less clear than structural formulas.

904ad02c12 == Biosynthesis
== 904ad02c12

Mabuterol the acetophenone
and hence 1-[4-amino-3-

chloro-5-(trifluoromethyl)phenyl]ethanone [97760-76-4] (7). Halogenation with bromine in acetic acid led to Mabuterol is a selective β_2 adrenoreceptor agonist 904ad02c12

Ethylbenzene occurs naturally in coal tar and petroleum. 904ad02c12 log 904ad02c12 1,4-Butanediol (1-4-BD) 904ad02c12 Aceburic acid 904ad02c12 == Properties == 904ad02c12

Ethylbenzene Ethylbenzene exposure can be determined Ethylbenzene is an organic compound with the formula C_8H_{10} or $C_6H_5CH_2CH_3$. This monocyclic aromatic hydrocarbon is important in the petrochemical industry as a reaction intermediate in the production of styrene, the precursor to polystyrene, a common plastic material. It is a highly flammable, colorless liquid with an odor similar to

that of gasoline. In 2012, more than 99% of ethylbenzene produced was consumed in the production of styrene. ethylbenzene biodegrades to 1-phenylethanol, acetophenone, phenylglyoxylic acid, mandelic acid, benzoic acid and hippuric acid
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Both beaver sexes have a pair of castor sacs and a pair of anal glands, located in two cavities under the skin between the pelvis and the base of the tail. The castor sacs are not true glands (endocrine or exocrine) on a cellular level, hence references to these structures as preputial glands, castor glands, or scent glands are misnomers. 904ad02c12

Γ -Hydroxyvaleric acid It is sometimes seen on the grey market γ -Hydroxyvaleric acid (GHV), also known as 4-methyl-GHB, is a designer

drug related to γ -hydroxybutyric acid (GHB). γ -Hydroxyvaleric acid (GHV), also known as 4-methyl-GHB, is a designer drug related to γ -hydroxybutyric acid (GHB). It is sometimes seen on the grey market as a legal alternative to GHB, but with lower potency and higher toxicity, properties which have tended to limit its recreational use 904ad02c12

Deuterated benzene For example, deuterated benzene could be used in the synthesis of deuterated benzoic acid, if desired: Many Deuterated benzene (C_6D_6) is an isotopologue of benzene (C_6H_6) in which the hydrogen atom ("H") is replaced with deuterium (heavy hydrogen) isotope ("D"). more slowly due to the kinetic isotope effect 904ad02c12

The dominant application of ethylbenzene is its role as an intermediate in the production

of polystyrene. Catalytic dehydrogenation of ethylbenzene gives hydrogen and styrene: 904ad02c12 The basic idea is that for any two reactions with two aromatic reactants only differing in the type of substituent, the change in free energy of activation is proportional to the change in Gibbs free energy. It is important to understand, that the equilibrium constants in this relationship come from thermodynamics but the reaction rate constants come from chemical kinetics, and neither discipline predicts such relationship. Instead, it was introduced by Hammett empirically. Hammett equation belongs to a larger set of correlations between the rate of a chemical reaction and its driving force. 904ad02c12 The properties of deuterated benzene are very similar to those of normal benzene, however, the increased atomic

weight of deuterium relative to protium means that the melting point of C_6D_6 is about $1.3\text{ }^{\circ}C$ higher than that of the nondeuterated analogue. The boiling points of both compounds, however, are the same: $80\text{ }^{\circ}C$.

Acetophenone is formed as a byproduct of the cumene process, the industrial route for the synthesis of phenol and acetone. In the Hock rearrangement of isopropylbenzene hydroperoxide, migration of a methyl group rather than the phenyl group gives acetophenone and methanol as a result of an alternate rearrangement of the intermediate.

Occurrence and applications

Valeric acid

See also

Castoreum Other compounds are: benzoic acid, benzyl alcohol, borneol, o-cresol, 4-

(4-hydroxyphenyl)-2-butanone, Castoreum is a yellowish exudate from the castor sacs of mature beavers used in combination with urine to scent mark their territory. pinocamphone, and two linalool oxides and their acetates 904ad02c12

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