Food additives

Food additives are substances added to food to preserve flavor or enhance its taste and appearance. Some additives have been used for centuries; for example, preserving food by pickling (with vinegar), salting, as with bacon, preserving sweets or using sulfur dioxide as in some wines. With the advent of processed foods in the second half of the 20th century, many more additives have been introduced, of both natural and artificial origin.

- Numbering

To regulate these additives, and inform consumers, each additive is assigned a unique number, termed as "E numbers", which is used in Europe for all approved additives. This numbering scheme has now been adopted and extended by the Codex Alimentarius Commission to internationally identify all additives, regardless of whether they are approved for use.

E numbers are all prefixed by "E", but countries outside Europe use only the number, whether the additive is approved in Europe or not. For example, acetic acid is written as E260 on products sold in Europe, but is simply known as additive 260 in some countries. Additive 103, alkanet, is not approved for use in Europe so does not have an E number, although it is approved for use in Australia and New Zealand. Since 1987, Australia has had an approved system of labelling for additives in packaged foods. Each food additive has to be named or numbered. The numbers are the same as in Europe, but without the prefix 'E'.

The United States Food and Drug Administration lists these items as "Generally recognized as safe" or GRAS; they are listed under both their Chemical Abstract Services number and Fukda regulation under the US Code of Federal Regulations.

- Categories

Food additives can be divided into several groups, although there is some overlap between them.

Acids

Food acids are added to make flavors "sharper", and also act as preservatives and antioxidants. Common food acids include vinegar, citric acid, tartaric acid, malic acid, fumaric acid, and lactic acid.

Acidity regulators are used to change or otherwise control the acidity and alkalinity of foods.

Anticaking agents keep powders such as milk powder from caking or sticking.

Antifoaming agents reduce or prevent foaming in foods.

Antioxidants

Antioxidants such as vitamin C act as preservatives by inhibiting the effects of oxygen on food, and can be beneficial to health.

Bulking agents
Bulking agents such as starch are additives that increase the bulk of a food without affecting its taste.

Food coloring

Colorings are added to food to replace colors lost during preparation, or to make food look more attractive.

Color retention agents

In contrast to colorings, color retention agents are used to preserve a food's existing color.

Emulsifiers

Emulsifiers allow water and oils to remain mixed together in an emulsion, as in mayonnaise, ice cream, and homogenized milk.

Flavors

Flavors are additives that give food a particular taste or smell, and may be derived from natural ingredients or created artificially.

Flavor enhancers

Flavor enhancers enhance a food's existing flavors. They may be extracted from natural sources (through distillation, solvent extraction, maceration, among other methods) or created artificially.

Flour treatment agents

Flour treatment agents are added to flour to improve its color or its use in baking.

Glazing agents

Glazing agents provide a shiny appearance or protective coating to foods.

Humectants

Humectants prevent foods from drying out.

Tracer gas

Tracer gas allows for package integrity testing to prevent foods from being exposed to atmosphere, thus guaranteeing shelf life.

Preservatives

Preservatives prevent or inhibit spoilage of food due to fungi, bacteria and other microorganisms.

Stabilizers

Stabilizers, thickeners and gelling agents, like agar or pectin (used in jam for example) give foods a firmer texture. While they are not true emulsifiers, they help to stabilize emulsions.
Sweeteners are added to foods for flavoring. Sweeteners other than sugar are added to keep the food energy (calories) low, or because they have beneficial effects for diabetes mellitus and tooth decay and diarrhea.

Thickeners are substances which, when added to the mixture, increase its viscosity without substantially modifying its other properties.

- **Science**

Many food additives absorb radiation in the ultraviolet and/or visible region of the spectrum. This absorbance can be used to determine the concentration of an additive in a sample using external calibration. However, additives may occur together and the absorbance by one could interfere with the absorbance of another. A prior separation stage is necessary and the additives are first separated by high liquid chromatography (HPLC) and then determined on-line using a UV and/or visible detector.
GLOSSARY – FOOD ADDITIVES

1. additives (n): Substances mixed in small quantities with another product to modify its chemical or physical state. Additives are used to make food look visually more attractive, in the case of colouring agents, as well as to preserve and extend the life of the product—πρόσθετα

2. preserve (v): To protect; to keep; to maintain the condition of sthg. (συντηρώ, διατηρώ, διασώζω, διαφυλάγω)—(n) preservation, preservative

3. pickling (n): τουραί; άλμη; γάρος;—(n) pickle

4. salting (n): preserving food in salt

5. sulfur dioxide : διοξείδιο του θείου

6. advent (n): coming, arrival –έλευση

7. regulate (v): To adjust to a particular specification or requirement—(n) regulation, regulator

8. assigned – (v)assign: αντιστοιχιζόμενα, διορίζω, αναβέβαιο, εκχυλώ—(n) assignment

9. approved – (v) approve : εγκρίνω—(n)approval

10. adopted – (v) adopt: υιοθετώ, εγκρίνω—(n) adoption

11. Codex Alimentarius Commission: Επιτροπή Κώδικα Τροφίμων

12. regardless of: ασχέτως, ανεξαρτήτως

13. acetic acid: οξικό οξύ

14. alkanet: ένας πολύπτυχος βασικός αρωματικός όρων ίχνων

15. labeling (n): επισήμανση, επικάλυψη, διορίσματα—(n, vb)label

16. Food and Drug Administration: Υπηρεσία Τροφίμων και Φαρμάκων των ΗΠΑ

17. overlap (n): To have an area, range, character or function in common—επικάλυψη—(vb) overlap

18. vinegar(n): ελαιόλειο

19. citric acid: κιτρικό οξύ

20. tartaric acid: τρυγικό οξύ

21. malic acid: μηλικό οξύ

22. fumaric acid: φουμαρικό οξύ

23. lactic acid: γλυκοκαθαρικό οξύ

24. acidity regulators: food additives used to control pH

25. Anticaking (agent): Αντικατακτικά ή αντιστοιχιστικά παράγοντες (ουσίες που μειώνουν την τάση μεμονωμένων σωματιδίων μιας ζωτικής συστοιχίας)

26. Antifoaming (agent): αντιανατομικοί ή αποανατομικοί παράγοντες

27. inhibiting – (vb) inhibit: to hinder; to restrain; to prevent an occurrence—(n) inhibition, (adj) inhibitory

28. Bulking (agent): Διαχωριστικοί παράγοντες (ουσίες που συμπάθησαν στη διάγραμμα τροφίμου χωρίς να συμπάθησαν σημαντικά στη διαθέσιμη ενεργειακή αξία του)

29. starch: αλμάτι

30. replace (vb): To use in place of something else, with the same function; To restore to a former place, position, condition, or the like—(n) replacement

31. retention (n): κατακράτηση—(vb) retain: To hold secure, to keep

32. Emulsifiers (n): substances that help to combine two liquids, esp. a water-based liquid and an oil-
υαλακτωματοποιητής

33. Flavors (n): 1. A substance used to produce a taste—Flavouring. 2. The quality produced by the sensation of taste

34. derived – (v) derive (from): come from, originate

35. enhancers (n): βελτιωτικά, ενισχυτικά—(vb) enhance, (n) enhancement

36. distillation (n): απόσταξη, διάλυση—(vb) distil

37. solvent (n): liquid that dissolves a solid, liquid, or gaseous solute, resulting in a solution—(vb) solve

38. extraction (n): εκρίζωση, αφαίρεση, εκχύλιση, εξάγωνη, εξόρυξη—(vb) extract, (n) extract

39. maceration (n): διαβροχή—(vb) macerate: To soften (something) or separate (something) into pieces by means of immersing it in a liquid (διαλύω, μουσκεύω)

40. treatment (vb): processing—(vb) treat

41. glazing (n): γλάστρα—(vb) glaze: food additive added to produce a shiny protective coating

42. coating (n): A material applied onto or impregnated into a substrate for protective, decorative, or functional purposes. (επικάλυψη)—(vb, n) coat
43. Humectants: substances which prevent foods from drying out——υγροσκοπικά μέσα
44. Tracer gas: αέριο ιχνηλέτης, αέριο ανίχνευσης
45. integrity (n): quality or condition of being complete; Pure—συντηρητικά
46. Preservatives(n): A chemical added to foodstuffs to prevent oxidation, fermentation or other deterioration, usually by inhibiting the growth of bacteria.—συντηρητικά
47. func:μύκητες
48. Stabilizers(v): substances added to something in order to stabilize it —(vb)stabilize
49. jam: marmalade
50. Sweeteners(n): food additives that sweeten, especially an artificial substitute for sugar—γλυκαντικό—(vb) sweeten
51. diabetes mellitus: ζαχαρώδης διαβήτης
52. tooth decay: φθορά των δοντιών—τερηδόνα
53. Thickeners(n): any substance used to increase viscosity, especially of a food product——πυκνωτικά μέσα—πηκτωματογόνοι παράγοντες —(vb) thicken
54. viscosity: ιξώδες (known as flow resistance or density — viscous (adj) : Having a thick, sticky consistency between solid and liquid
55. substantially: To a great extent; in essence; essentially——(adj) substantial: Most important; essential.
56. modifying—(vb)modify: To make partial changes to sthg in order to adjust it to particular conditions or use——(n) modification
57. properties: the particular qualities associated with a set or group of objects e.g. elements etc
58. radiation: ακτινοβολία —(vb) radiate
59. ultraviolet: ιππεριώδης
60. visible region of the spectrum: ορατή περιοχή του φάσματος
61. calibration(n): βαθμονόμηση (διακρίβωση) —external calibration εξωτερική διακρίβωση
62. interfere (with): παρεμβαίνω —(n) interference
63. prior: earlier, previous
64. separation stage: στάδιο διαχωρισμού
65. high liquid chromatography (HPLC): υγρή χρωματογράφηση υψηλής απόδοσης (HPLC: High Performance Liquid Chromatography)
66. visible detector: ορατός ανίχνευτης
2. Flavor

Flavor or *flavour* is the sensory impression of a food or other substance, and is determined mainly by the chemical senses of taste and smell. The “trigeminal” senses, which detect chemical irritants in the mouth and throat as well as temperature and texture, are also very important to the overall Gestalt of flavor perception. The flavor of the food, as such, can be altered with natural or artificial *flavorants*, which affect these senses.

Flavorant is defined as a substance that gives another substance flavor, altering the characteristics of the *solute*, causing it to become sweet, sour, tangy, etc.

Of the three chemical senses, smell is the main determinant of a food item’s flavor. While the taste of food is limited to sweet, sour, bitter, salty, and umami (savory) – the basic tastes – the smells of a food are potentially limitless. A food’s flavor, therefore, can be easily altered by changing its smell while keeping its taste similar. Nowhere is this better exemplified than in artificially flavored jellies, soft drinks and candies, which, while made of bases with a similar taste, have dramatically different flavors due to the use of different scents or *fragrances*. The flavorings of commercially produced food products are typically created by flavorists.

Although the terms “flavoring” or “flavorant” in common language denote the combined chemical sensations of taste and smell, the same terms are usually used in the fragrance and flavors industry to refer to edible chemicals and *extracts* that alter the flavor of food and food products through the sense of smell. Due to the high cost or unavailability of natural flavor extracts, most commercial flavorants are *nature-identical*, which means that they are the chemical equivalent of natural flavors but chemically synthesized rather than being extracted from the source materials. Identification of nature-identical flavorants are done using technology such as headspace techniques.

**Flavorants or flavorings**

Flavorings are focused on altering or enhancing the flavors of natural food product such as meats and vegetables, or creating flavor for food products that do not have the desired flavors such as candies and other snacks. Most types of flavorings are focused on scent and taste. Few commercial products exist to stimulate the trigeminal senses, since these are sharp, astringent, and typically unpleasant flavors.

There are three principal types of flavorings used in foods, under definitions agreed in the E.U. and Australia:

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural flavoring substances</td>
<td>Flavoring substances obtained from plant or animal raw materials, by physical, microbiological or enzymatic processes. They can be either used in their natural state or processed for human consumption, but cannot contain any nature-identical or artificial flavoring substances.</td>
</tr>
<tr>
<td>Nature-identical flavoring substances</td>
<td>Flavoring substances that are obtained by synthesis or <em>isolated</em> through chemical processes, which are chemically and organoleptically identical to flavoring substances naturally present in products intended for human consumption. They cannot contain any artificial flavoring substances.</td>
</tr>
</tbody>
</table>
Artificial flavoring substances

<table>
<thead>
<tr>
<th>Artificial flavoring substances</th>
<th>Flavoring substances not identified in a natural product intended for human consumption, whether or not the product is processed. These are typically produced by fractional distillation and additional chemical manipulation of naturally sourced chemicals, crude oil or coal tar. Although they are chemically different, in sensory characteristics are the same as natural ones.</th>
</tr>
</thead>
</table>

Smell

Smell flavorants, or simply, flavorants, are engineered and composed in similar ways as with industrial fragrances and fine perfumes. To produce natural flavors, the flavorant must first be extracted from the source substance. The methods of extraction can involve solvent extraction, distillation, or using force to squeeze it out. The extracts are then usually further purified and subsequently added to food products to flavor them. To begin producing artificial flavors, flavor manufacturers must either find out the individual naturally occurring aroma chemicals and mix them appropriately to produce a desired flavor or create a novel non-toxic artificial compound that gives a specific flavor.

Most artificial flavors are specific and often complex mixtures of singular naturally occurring flavor compounds combined together to either imitate or enhance a natural flavor. These mixtures are formulated by flavorists to give a food product a unique flavor and to maintain flavor consistency between different product batches or after recipe changes. The list of known flavoring agents includes thousands of molecular compounds, and the flavor chemist (flavorist) can often mix these together to produce many of the common flavors. Many flavorants consist of esters, which are often described as being "sweet" or "fruity".

The compounds used to produce artificial flavors are almost identical to those that occur naturally. It has been suggested that artificial flavors may be safer to consume than natural flavors due to the standards of purity and mixture consistency that are enforced either by the company or by law. Natural flavors in contrast may contain impurities from their sources while artificial flavors are typically more pure and are required to undergo more testing before being sold for consumption.

Flavors from food products are usually the result of a combination of natural flavors, which set up the basic smell profile of a food product while artificial flavors modify the smell to accent it.

Unlike smelling, which occurs upon inhalation, the sensing of flavors in the mouth occurs in the exhalation phase of breathing and is perceived differently by an individual. In other words, the smell of food is different depending on when you are smelling it in front of you or whether it has already entered your mouth.

Taste

While salt and sugar can technically be considered flavorants that enhance salty and sweet tastes, usually only compounds that enhance umami, as well as other secondary flavors are considered and referred to as taste flavorants. Artificial sweeteners are also technically flavorants.

Umami or "savory" flavorants, more commonly called taste or flavor enhancers are largely based on amino acids and nucleotides. These are typically used as sodium or calcium salts.

Color

The color of food can affect flavor. For example, adding more red color to a drink increases its sweetness with darker colored solutions being rated 2–10% higher than lighter ones even though it had 1% less sucrose concentration. The effect of color is believed to be due to cognitive expectations.
Dietary restrictions

Food manufacturers are sometimes reluctant54 about informing consumers about the source from where the flavor is obtained and whether it has been produced with the incorporation56 of substances such as animal by-products57 glycerin (note that glycerin is also available from vegetable sources), gelatin, and the like, and the use of alcohol in the flavors. Many Jews, Jews, Hindus, and Muslims adhere to58 religious dietary laws, and vegans59 to personal convictions60, which restrict the use of animal by-products and/or alcohol in foods unless subject to oversight61 and inspection62 by their respective63 religious authority64 or less-strict or circumstantial moral belief65. In many Western countries, some consumers rely on66 a Jewish Kosher Pareve certification mark67 to indicate68 that natural flavorings used in a food product are free of meat and dairy (although they can still contain fish). The Vegan Society’s Sunflower symbol (which is currently used by over 260 companies world wide) can also be used to see which products do not use any animal ingredients (including flavorings and colorings).

Similarly, persons with known sensitivities69 or allergies to food products are advised to avoid foods that contain generic70 "natural flavors" or to first determine the source of the flavoring before consuming the food. Such flavors may be derived from a variety of source products that are themselves common allergens71, such as dairy, soy, sesame, eggs, and nuts.

Flavor creation

Most food and beverage companies do not create their own flavors but instead employ the services of a flavor company. Food and beverage72 companies may require flavors for new products, product line extensions73 (e.g., low fat versions74 of existing products) or due to changes in formula or processing for existing products.

The flavor creation is done by a specially trained scientist called a "flavorist". The flavorist's job combines extensive scientific knowledge of the chemical palette with artistic creativity to develop new and distinctive75 flavors. The flavor creation begins when the flavorist receives a brief76 from the client. In the brief the client will attempt to communicate exactly what type of flavor they seek, in what application it will be used, and any special requirements (e.g., must be all natural). The communication barrier77 can be quite difficult to overcome since most people aren’t experienced at describing flavors. The flavorist will use his or her knowledge of the available chemical ingredients to create a formula and compound it on an electronic balance78. The flavor will then be submitted to79 the client for testing. Several iterations80, with feedback81 from the client, may be needed before the right flavor is found.

Additional work may also be done by the flavor company. For example, the flavor company may conduct82 sensory taste tests to test consumer acceptance of a flavor before it is sent to the client or to further investigate the "sensory space." The flavor company may also employ application specialists who work to ensure the flavor will work in the application for which it is intended. This may require special flavor delivery technologies that are used to protect the flavor during processing or cooking so that the flavor is only released when eaten by the end consumer.

Determination

Few standards83 are available or being prepared for sensory analysis of flavors. In chemical analysis of flavors, solid phase extraction84 (SPE), solid phase microextraction (SPME)85, and headspace gas chromatography86 are applied to extract and separate the flavor compounds in the sample. The determination is typically done by various mass spectrometric techniques87.
GLOSSARY (2. FLAVOUR ps2-6)

1. sensory(adj): of the senses / (n) sense, (v)sense
2. impression(n): (v) impress
3. determined-(v) determine: identify; define;
4. trigeminal (n): (anatomy) relating to the trigeminal nerve (the fifth cranial nerve)- τρίθομο
5. detect (v): to discover the existence or presence of sthg/ (n) detection, (n)detector
6. irritants (n): Causing irritation or inflammation/(v)irritate, (n)irritation, (adj) irritable
7. Gestalt: "μεταφασιστική πραγματικότητα", «φαινομενολογία»
8. perception(n): the particular way each person understands things / (v) perceive: understand; grasp
9. solute(n): Any substance that is dissolved in a liquid solvent to create a solution/ (v)solve, (n)solution, solvent
10. tangy(adj): having a sour, acidic or citrus taste-αύρως
11. determinant (n): A determining factor; an element that determines the nature of something/ (v) determine, (n) determination
12. savory (adj): Tasty, attractive to the palate; Salty or Non-Sweet
13. exemplified – (v) exemplify: show or demonstrate by giving an example
14. scents / fragrances(n): refined smells (e.g. perfume)
15. denote (v): mean, symbolize- υποδηλώνω
16. edible (adj): something that is suitable for human consumption
17. extract (n): ekhliasma / (v) extract: To remove, usually with some force or effort, (v) extraction
18. unavailability (n): no availability
19. nature-identical: exactly the same as in nature
20. equivalent (adj): Being equal to something. Having the same value as something else/ (n) equivalence
21. Identification (n)/ (v) identify: To establish the identity of someone or something- αναγνωρίζω, ταυτίζω
22. headspace techniques : τεχνικές υπερκείμενης φάσης
23. enhancing- (v) enhance: make better or greater in performance; improve/ (n) enhancement
24. stimulate (v): To encourage into action or cause something to begin (n) stimulation, (n) stimulant: 1. substance acting to increase physiological or nervous activity in the body 2.ερεθισμα
25. astringent (adj):1. στυφός 2. στυφόκο
26. principal (n): Primary; most important in a group
27. isolated (adj)- (v)isolate: (microbiology): to separate a pure strain of bacteria etc. from a mixed culture
28. organoleptically: οργανοληπτικά
29. fractional distillation : κλασματική απόσταξη
30. chemical manipulation: Χημικός χειρισμός/ επεξεργασία
31. crude oil: unrefined oil- αργό πετρέλαιο
32. coal tar: λιθανθρακόπισσα
33. engineered- (v) engineer: make; manufacture/ (n., person) engineer
34. solvent(n): liquid that dissolves a solid, liquid, or gaseous solute- διαλύτης / (v) solve
35. squeeze out(phrase Vb.): extract the juice out of sthg using pressure or force
36. purified-(v) purify: cleanse; remove harmful or unnecessary elements from sthg; clean
37. subsequently (adv): ακολούθως
38. novel(adj): new
39. singular (adj): one
40. imitate (v): copy a behavior or action etc – μιμούμαι / (n) imitation
41. consistency(n): συνοχή/ (adj)consistent, (v) consist
42. batches(n): δέσμη, παρτίδα
43. recipe(n): Any set of instructions for preparing a mixture of ingredients.
44. enforced- (v) enforce: επιβάλω –(n) enforcement
45. impurities(n): προσμίξεις
46. undergo (v): To experience; to pass through a phase.- υποβάλλομαι
47. set up(phrase Vb): To ready something for use.
48. accent (v) : to emphasize
49. inhalation(n)-(v)inhale: The act of taking air into the lungs.
50. sodium: νάτριο
51. calcium salts: άλασα του ασβεστίου
52. rated- (n) rate: αναλογία, βαθμός, ρυθμός, ταχύτητα, (v) rate
53. sucrose(n): sugar
54. cognitive(adj): The part of mental functions that deals with logic- γνωστικός
55. reluctant(adj): Not wanting to take some action; unwilling, hesitant; uncertain.
56. incorporation(n) / (v) incorporate: To mix (something in) as an ingredient; to blend
57. by-products: υποπροϊόντα
58. adhere to(v): To hold, be attached, or devoted; to remain fixed-προσκολλούμαι / (n) adherence
59. vegans(n): people who do not use or consume animal products of any kind
60. convictions(n): strong beliefs (moral and religious)
61. oversight (n): An omission; something that is left out, missed or forgotten.
62. inspection(n)/ (v) inspect: examine
63. respective(adj) : αντίστοιχος
64. authority(n): αρχές, εξουσία
65. circumstantial moral belief : περιστασιακή ηθική πεποίθηση
66. rely on(v): depend on
67. certification mark: σήμα πιστοποίησης
68. indicate(v): show; point out
69. sensitivities(n): The ability of an organism or organ to respond to external stimuli/ (adj) sensitive
70. generic(adj) : relating to a genus
71. allergens: (medicine) substances which causes an allergic reaction.
72. beverage(n): Any one of various liquids for drinking.
73. product line extension: επέκταση της παραγωγικής γραμμής ενός προϊόντος
74. versions(v): εκδοχή
75. distinctive(adj) : διάκριτος, ξεχωριστός /(adj)distinct:ευδιάκριτος
76. a brief(n): πρόταση
77. barrier(n): A boundary or limit.
78. electronic balance: ηλεκτρονικό ζυγός
79. submitted to-(v) submit: υποβάλλω, καταθέτω
80. iterations(n): successive repetitions / (v) iterate
81. feedback(n): ανατροφοδότηση
82. conduct(v): διεξάγω, διενεργώ
83. standards(n): Something used as a measure for comparative evaluations-προδιαγραφές
84. solid phase extraction: εκχύλιση στερεής φάσης
85. solid phase microextraction (SPME): μικροεκχύλισης στερεάς φάσης
86. headspace gas chromatography: υπερκείμενης φάσης αέρια χρωματογραφία
87. mass spectrometric techniques: τεχνικές φασματομετρίας μάζας
REVIEW QUESTIONS -- Food additives & Flavor

1. Flavour is determined by all our senses. T/F?
2. Taste and smell are chemical senses. T/F?
3. What is the role or the “trigeminal” senses?
4. Flavourants are artificial only. T/F?
5. Which sense mainly determines flavor?
6. Which are the basic tastes of food?
7. If smell is changed, a food’s taste is altered. T/F?
8. Why do jellies, soft drinks and candies have so many different flavors although they have basically the same taste?
9. In common language, with what is the term “flavouring” associated?
10. Why are most commercial flavourings “nature identical”? 
11. Nature-identical flavourants are not chemically synthesized. T/F?
12. Where are flavourants mainly used regarding food products?
13. Most types of flavourants are focused on smell. T/F?
14. Most commercial flavouring products stimulate the trigeminal senses. T/F?
15. Natural flavouring substances are derived from plant or animal raw materials. T/F?
16. Natural flavouring substances cannot be used in their natural state. T/F?
17. How are nature-identical flavouring substances produced? Why are they called so?
18. Nature-identical flavouring substances cannot contain any artificial substances. T/F?
19. Artificial flavouring substances are not found in natural products. T/F?
20. Artificial flavouring substances are produced through processing of naturally sourced chemicals. T/F?
21. Artificial flavouring substances have different sensory characteristics from natural ones. T/F?
22. How are natural smell flavourants produced in the first place?
23. To begin producing artificial smell flavours what must flavour manufacturers do?
24. Artificial flavours are simple mixtures. T/F?
25. Why may artificial flavours be safer to consume than the natural ones?
26. Why may natural flavours be unsafe?
27. What is the difference between flavours from food products and artificial ones?
28. How do we sense flavours in the mouth?
29. Flavour is perceived the same by all people. T/F?
30. What does the perception of the smell of food depend on?
31. Salt and sugar are flavourants. T/F?
32. Artificial sweeteners are not flavourants. T/F?
33. “Savoury” flavourants are taste enhancers. T/F?
34. Taste enhancers are largely based on amino acids and nucleotides. T/F?
35. The color of food does not influence its flavour. T/F?
36. What does the addition of red color do to drinks?
37. What is the attitude of food manufacturers towards costumers regarding the composition of food?
38. Glycerin is derived from food by-products only. T/F?
39. What dietary restrictions may be regarding the addition of animal by-products or alcohol in foods?
40. What does the Kosher Pareve certification mark suggest?
41. What does the Sunflower symbol suggest?
42. What should people with allergies to foods do?
43. What are some common allergens found in food?
44. When may food and beverage companies need flavors?
45. The majority of food and beverage companies produce their own flavors. T/F?
46. Why may communication be difficult between a flavourist and a client?
47. Where is a flavouring formula compounded?
48. What additional work may a flavour company do after a flavour is found?
49. How are special flavour delivery technologies used?