



Fig. 1. A schematic diagram of a decision tree for the estimation of probable toxicity. Assessors should (a) start with question 1, (b) proceed by 'no' \swarrow or 'yes' \searrow , (c) move from any underscored number encountered to same circled number and (d) proceed to final classes I, II or III. Working downwards through the tree, the symbols designate the following groupings: biological normality (●●●), high and low toxicity (●●●); heterocyclics (—); terpenoids (---); aliphatics (-○-○-○); aromatics (-○-●-○); alicyclics (-●-●-●).

Definitions for use with the decision tree

The use of this decision tree and these definitions presupposes a working familiarity with organic chemistry, biochemistry and food chemistry. Even individuals with a broad knowledge in these areas will find it useful to consult references such as the *Merck Index* (1976) and the 'Weurman Report' (Central Institute for Nutrition and Food Research TNO, 1973), for detailed information on natural occurrence in food, and *Hawk's Physiological Chemistry* (Oser, 1965).

Users should review these definitions carefully and refer to them frequently. Because they are fashioned to serve the needs of this paper, they differ in several minor, but important, respects from the meanings commonly attributed to these words and phrases. Italicized key words used in the procedure (pp. 258-263) are followed by a letter, in parenthesis, referring to the following definitions:

(A) *Aliphatic* includes olefinic and polyolefinic, but not acetylenic or alicyclic compounds.

(B) *Aromatic* means that the substance has at least one benzene, furan, thiophene, pyridine or pyrrole ring, however substituted and whether or not it is fused to another ring.

(C) *Common component of food*. In something as diverse, changing and occasionally uncertain as natural occur-

rence, it is only possible to define a guideline, not a firm rule. For this decision tree, the term *common component of food* denotes a substance that has been reported in the recognized literature as occurring in significant quantity (approximately 50 ppm or more) in at least one major food, or in trace quantities at the ppm level or less in several foods, including minor or less frequently consumed foods. The latter include spices, herbs and ethnic specialties. This definition *excludes* natural or man-made contaminants, and hormones.

(D) *Common terpene* means an isoprenoid compound (carbon skeleton made up of two or more 5-carbon isoprene units), reported in the literature as a more than trace constituent of two or more generally consumed foods, either raw or as ordinarily prepared for consumption, without added ingredients.

(E) *Functional group* is a portion (sometimes called a radical) of an organic molecule consisting of a combination of atoms of two or more elements (at least one of which is not hydrogen or carbon) and causing the molecule to exhibit a characteristic set of reactions. For the purpose of this classification this definition excludes carbon-carbon double bonds and aromatic rings.

(F) *Normal constituent of the body* means any systemic constituent present at a normal physiological level, whether free or combined, except hormones. This includes essential nutrients and major food constituents and the physiologically normal metabolites of each. It excludes transitory substances present only as a result

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