Ascites fluid (0.1 ml) from a tumor-bearing mouse and containing 10^5 cells[7] was injected intraperitoneally on day zero. Each experimental group contained six male mice (20–25 g) (4). The drug was injected intraperitoneally on days 1, 5, and 9 at a 120-mg/kg dose. The T/C was 85.4% for the L-1210 leukemia and 83.5% for the H-5 ascites tumor. A 360-mg/kg dose at day 1 or 40 mg/kg on days 1–9 in the L-1210 tumor also gave a T/C of 85.4%. A T/C value ≤85% indicates that the compound is probably producing a toxic response (4). This compound did not cause any deaths in control A/J or $B6D2F_1$ mice at the doses used, nor did it cause any visible toxicity, such as weight loss.

The probable toxic response of this compound in tumor-bearing mice hindered the testing of other substituted pyrrolo(2,3-*d*)pyrimidine-2,4-diones for antitumor activity.

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Studies on Herbal Remedies I: Analysis of Herbal Smoking Preparations Alleged to Contain Lettuce (*Lactuca sativa* L.) and Other Natural Products

Keyphrases □ Pharmacognosy—analysis of smoking preparations alleged to contain lettuce (*Lactuca sativa* L.) □ Psychotropics—alleged, analysis of lettuce (*Lactuca sativa* L.) in smoking preparations

To the Editor:

In this communication we would like to draw attention to the availability in health food stores and other outlets of three so-called "narcotic substitute" smoking products[1] that allegedly contain distillates of lettuce. Preparation 1 ("Hashish") and preparation 2 ("Opium") are recommended by their manufacturer for legal, social smoking, while preparation 3 ("Hash Oil") is suggested for application to marijuana cigarettes to enhance potency and taste. According to the package inscriptions, all three preparations contain "*Lactuca sativa*" (Garden Lettuce) and "*Turnera diffusa*" (Damiana) distillates. In addition, preparation 1 is claimed to be fortified with African Yohimbe bark, and preparation 2 with *Lactuca virosa* (Wild Lettuce) and *Nepeta cataria* (Catnip) distillates, as well as Chinese ginseng root. Ingredient proportions are not stated on the package labels.

It was suggested to us[2] that the smoking of preparation 2, without additives, may have been responsible for producing apparent psychotropic effects experienced by two teenagers. In an attempt to provide a rationale for this observation, the literature was searched for any ethnomedical and biological activities of Garden and Wild Lettuce and Damiana, and to whether or not any of the known constituents of these plants belong to classes of psychotropic substances.

Extracts of both *L. sativa* and *L. virosa* have been claimed to possess narcotic properties (1, 2), while the latter plant has been associated with hypnotic and sedative effects (3). Experimentally, extracts of *L. sativa* have exhibited *in vitro* antitubercular properties (4) and hypotensive activity in dogs (5). *T. diffusa* extracts reputedly show mild stimulant (2), purgative (3), and aphrodisiac (1, 3) activities.

An early study indicated that *L. sativa* and *L. virosa* contain a mydriatic alkaloid, which was identified as the tropane derivative hyoscyamine on the basis of the melting point of its aurochloride (6). The presence of a mydriatic alkaloid, although disputed, was presumably confirmed in later studies on *L. virosa* (7, 8). *L. virosa* has been shown to contain *N*-methyl-β-phenethylamine (9), and *T. diffusa* has been stated to contain the xanthine derivative, caffeine (10). Tropane alkaloids, phenethylamines, and xanthines were recently classified, respectively, as deliriant psychodysleptics, visionary psychodysleptics, and excitatory psychoanaleptics (11).

All three preparations were examined phytochemically to determine if any of these amines could be detected. Three extraction procedures, namely, a general alkaloidal method (12), and methods for the specific extraction of phenethylamines (13) and caffeine (14), were applied to 2-g portions of each product. No alkaloidal spots corresponding to reference hyoscyamine, *N*-methyl-β-phenethylamine[3], or caffeine were detected by TLC on silica gel using several solvent systems (15). Dragendorff's reagent, as well as other reagents useful for the detection of phenethylamines (ninhydrin) (15) and xanthines (iodine and ferric chloride) (15) were used for plate visualization.

Therefore, it appears that any psychotropic effects experienced by the smoking of these lettuce-Damiana distillates are not due to the presence of tropane alkaloids, phenethylamines, or xanthine bases.

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[2] Our attention was drawn to this problem by C. R. Sherwood, A. J. Canfield Co., Chicago, IL 60619.

[3] We are grateful to Prof. J. L. McLaughlin, Purdue University, W. Lafayette, Ind., for a reference sample of *N*-methyl-β-phenethylamine hydrochloride.

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BOOKS

REVIEWS

Burger's Medicinal Chemistry, 4th Ed., Part III. Edited by MANFRED E. WOLFF. Wiley, 605 Third Ave., New York, NY 10016. 1981. 1354 pp. 18.5 × 26 cm. Price $100.00.

This book is part of an excellent series in the medicinal chemistry field. With contributions by a number of knowledgeable and literate authors, the contents include drugs acting on the central nervous system, the autonomic nervous system, the cardiovascular system, and the renal system. The book is a well-balanced blend of the theoretical and practical aspects of the field and its potential application to new discoveries.

Each chapter is well planned, emphasizes biochemical rationale, structure–function relationships, and metabolism, and is adequately referenced to provide the reader with sources of more detailed information. This text is also characterized by thoughtful attention to pedagogy, since the prose does more than fill the space between structures and equations. The book contains many useful tables, graphs, and other illustrations and is replete with numerous structures.

Professor Wolff has assembled an informative and excellent text, so it is regrettable that the major limitation of this potentially useful text appears to be its price. Overall, the present volume together with Parts I and II of the series offers a high quality and useful source of information with broad application across the biomedical sciences. Professor Wolff upholds the series' reputation as one of the classic and indispensable reference works for those in teaching and research.

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Principles of Medicinal Chemistry. Edited by WILLIAM O. FOYE. Lea & Febiger, 600 S. Washington Square, Philadelphia, PA 19106. 1981. 931 pp. 18 × 26 cm. Price $45.50. (Canada $54.50).

This book assembles 39 chapters of information associated with textbooks intended for undergraduate courses in organic medicinal chemistry. The first six chapters give effective coverage of general introductory principles; thereafter, with the exception of Chapters 27–29 (which provide good introductions to drugs of plant origin and subsequent chapters on chemotherapeutic agents), the book proceeds systematically through major pharmacological or therapeutic classes of drugs.

Discussions are generally restricted to organic agents, although actions of some inorganic agents such as iodine and iodides, sodium nitroprusside, and gold sodium thiosulfate are cited. The last chapter is also an exception to the overall organic medicinal chemical content in that it incorporates a very good introduction to radiopharmaceuticals. Finally, there is an appendix containing useful compilations of pKa values for a number of drugs and pH values for body fluids.

The authors of the chapters dealing with the pharmacological classes of agents have used a variety of formats to cover their topics. In general, they discuss pharmacological actions, absorption, distribution, metabolism and excretion, clinical uses, and structure–activity relationships and give appropriate examples. Often this information is set out against a background survey of biochemistry pertaining to the group under consideration. In some of these chapters, the explanations of the agents' pharmacological actions, based on the structural reasons for their ability to fit into a biochemical sequence, are impressive. The overall quality of these chapters, despite differing organizational styles, is very good.

While the individual chapters impress as compact, self-contained entities, some readers may notice instances of redundancy. For example, the scheme for catabolism for certain neurotransmitters is repeated in detail in several chapters and the pharmacology of a number of therapeutic agents is given several times. It is possible that such repetition cannot be avoided in a multiauthored work. In addition, while background pharmacology, biochemistry, and the clinical uses of the agents are almost always thoroughly treated, chemical properties such as acidity, basicity, and chemical stability are sometimes not discussed. Perhaps inclusion of such coverage would not only help students appreciate some pharmaceutically important properties but would also help them relate structure and chemical properties to absorption, distribution, metabolism, excretion, and biological actions.

In summary, all chapters bear evidence of careful scholarly preparation. They are generally thorough and current in their coverage and are quite readable. The book meets its objectives very well and should afford excellent reading for medicinal chemists, pharmacologists, and students in pharmacy and related disciplines.

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Toxicants and Drugs: Kinetics and Dynamics. By ELLEN J. O'FLAHERTY. Wiley, 605 Third Ave., New York, NY 10016. 1981, 398 pp. 16 × 24 cm. Price $42.50.

This useful book approaches a complex subject with a disarming frankness not usually found in such texts. In the preface, the author states that the first chapter reviews algebra and calculus at a level designed to give nonmathematicians—even antimathematicians!—confidence that they can "do" kinetics. After hopefully instilling such confidence and expertise, the reader is eventually lead into sophisticated concepts relating to disposition in saturable and nonlinear systems, the plateau principle of chronic exposure, receptor theory, pharmacodynamics and dose–response relationships. The book is a gem. A useful list of definitions of various symbols is included as a separate section and as an added bonus, a number of interesting problems taken from examples in the