

BOOK REVIEWS

Cultivation and Utilisation of Aromatic Plants—
 Edited by C. K. Atal and B. M. Kapur, Regional
 Research Laboratory (CSIR), Jammu-Tawi, 1982;
 Pages 815, Price: Rs. 100.00, \$35, £16.

The use of plants for flavour and aromatic purposes dates back to the pre-historic period. India has been one of the foremost countries known for spice trade. Though India boasts of a variety of flora, with varied climatic conditions and cheap labour, it is of concern to note that it does not even rank amongst the first 22 of exporting countries for essential oils; statistics reveal that there has been a gradual decline in the export of essential oil and perfumery trade of India. One of the reasons for this is that the research and development activities carried out along with the regular seminars and work shops held in the field of perfumery and essential oils has not been put into optimum utilisation which in turn may be assigned to the scattered literature in the field. In this context, the present book is a welcome compendium for all those interested in perfumery, flavour and fragrance research, industry and trade. The book is the companion volume of the *Cultivation and Utilisation of Medicinal Plants*. It not only includes research papers contributed at the CUMAP symposium held by the Regional Research Laboratory, Jammu, in 1976, but also incorporates some additional papers to fill in a few gaps, making it up-dated.

The book includes 72 research papers written by 104 authors, divided into 5 main sections.

The section General, includes review papers on (a) Chemotaxonomy (1 paper), which emphasises on the role of essential oils in the classification and phylogeny of plant kingdom; (b) Physiology of Olfaction (1), dealing with the science of the sense of smell; (c) Isolates and Semi-synthetics (1), which predicts the importance of essential oils on the perennial source of supply of naturals produced in "the Laboratories under Sun" inspite of the present wave on isolates from synthetics; (d) Evaluation and Standardisation (4), which deals with the various methodology for the analysis and standardisation aspects of essential oils.

The section on Oleoresins and Culinary herbs includes papers on (a) Culinary herbs; (b) Condiments; (c) Cultivation of Spices; (d) Essential oils and Oleoresins from Spices and (e) Quality Evaluation. Various aspects like production, trade, cultivation on *Basil, Celery, Dill, Thyme, Coriander, Cumin, Fennel, Fenugreek, Pepper, Cardamom, Clove, Nutmeg, Ginger* and *Turmeric* are elaborated.

The section on Aromatic Plants—Major deals with

plants of importance like (a) Mints (6 papers)—details on *Mentha*; (b) *Cymbopogons* (6)—aspects on citronell oil; (c) Turpentine and Down Stream Products (3)—Pine resin, turpentine oil, Rosin and its derivatives; (d) Sandal wood (2)—Cultivation, utilisation and chemical aspects of sandal wood oil, (e) Vetiver (2); (f) *Eucalyptus* (4) Cultivation, ecology, physiology, plant introduction and utilisation aspects; (g) *Ocimum* (3)—Cytogenetics, new hybrid cultivation.

The section Aromatic Plants—others, deals with (a) Celery (2 papers); (b) Jasmine (2); (c) Rose (1); (d) Dill (1); (e) *Gernatium* (5); (f) Hops (5); (g) *Cinnamomum* (1); (h) *Saussurea lappa* (1); (i) *Pandanus* (1); (j) Cedar Wood (1); (k) *Matricaria* (1), (l) *Cyperus* (1); (m) Agar wood (1); (n) *Skinimia Laureola* (1) (o) Oakmoss (1); and (p) *Pycnanthemum* (1). Useful information on the history, cultivation, agronomy, botany, trade, diseases, hybridization, etc., are included.

The section on Miscellaneous is divided into 4 sub-heads. The sub-headed (a) Distillation consists of 2 papers dealing with the methodology and engineering aspects of distillation for essential oils; (b) Flavours (2)—deals with the chemistry of Tea-flavour and the use of natural essential oils and extracts in flavours; (c) Utilisation of waste of essential oil industry (2)—deals on lignocellulosic waste and Vanillin from saw dust; (d) Others with 3 papers cover aspects on insect control, Agrabathi industry in Karnataka, culminating aptly with export potential of essential oils. The book also includes a useful index for plants, chemical constituents and trade names. It is observed that as many as 14 papers have been omitted from the parent volume and 34 new papers have been added to this present volume. This may be for the fact to add better information and also to up-date the research carried out.

The Editors have taken very great care and put in strenuous efforts to accommodate the various papers under the appropriate heads. The papers have been written by erudite scholars in the field. The vast contents which are both extensive and intensive on the various aspects of plants of such an economically important field will be highly useful to all those involved in research on perumery, flavour and fragrance besides trade and industry it is also useful to specialists in the areas of agriculture, economic botany, pharmacy, pharmacognosy, pharmacology and natural products chemistry. The get up of the book is excellent and is in tune with the other CSIR publications. The price is within the individual reach.

The book should find a foremost place for reference in all Universities, research institutions and concerned industries.

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Annual Review of Biochemistry—Vol. 51 (1982): by Drs. Esmond Snell, Paul D. Boyer, Alton Meister, Charles C. Richardson. Annual Review Inc. Pages: 1055. Price: USA \$23.00, elsewhere \$26.00.

The series of Annual Review of Biochemistry has entered the fiftyfirst year. Yet another magnificent collection of reviews of the progress of biochemistry. This volume of 1000 pages with 30 articles is edited by E. E. Snell, P. D. Boyer, A. Meister and C. C. Richardson. It has the prefatory article by W. A. Englehardt who recalls the earlier work on oxidative phosphorylation, Pasteur effect, myosin and ATPase and blends his autobiography and scientific work to make it most interesting.

It is interesting to note that enzymology and metabolic pathways continue to hold their flavour and attract the attention of the biochemists. The article on enzymology of oxygen is a delightful one, on the properties of oxygen and on oxidases and oxygenases. Other articles include: DNA repair enzymes, renin angiotension system enzymes; magnetic resonance studies on enzymes, sterol biosynthesis, synthesis of yeast cell wall and its regulation, mechanism of intracellular protein breakdown, enzyme therapy (problems and solutions) and subunit cooperation and enzyme catalysis.

Articles on molecular biology dominate—a reflection of the surging interest in this field. The articles include chromatin, components of bacterial ribosomes, fidelity of DNA synthesis, SnRNA, SnRNPs and RNA processing, molecular biology of trypanosomes, molecular mechanism of genetic recombination, repetitive sequences in eukaryotic DNA and their expression, initiation factors in protein biosynthesis, eukaryotic DNA replication: viral and plasmid model systems.

Structural studies on macromolecules have been covered well in the articles on conformation, flexibility and dynamics of polypeptide hormones, three-dimensional structure of DNA, specific intermediates in the folding reactions of small proteins and the

mechanism of protein folding, the nicotinic cholinergic receptor: correlation of molecular structure with functional properties, carbohydrate—specific receptors of the liver. It is of interest to note that the work from India on DNA structure is well represented including several articles published in Indian Journals.

A group of general articles covered several interesting new developments on proton electrochemical gradients and energy transduction processes, intermediate filaments: a chemically heterogeneous developmentally regulated class of proteins, biochemistry of interferons and their actions, phytotoxins, bacteriorhodopsin and related pigments in halobacteria and the biology and mechanism of action of nerve growth factor.

These articles give a perspective of the growth and status of each field. They are complete in themselves and make a good reading. They give useful material for advanced lectures. For research workers, each article gives a number of references of the current and previous literature and would be of great help in updating their collection. The Annual Reviews of Biochemistry is undoubtedly the most useful single book for a biochemist to keep abreast with this fast-growing field and the current volume amply justifies this.

Annual Review of Public Health—Vol. Vol. 3, (Annual Reviews Inc., 4139 El Camino Way, Palo Alto, California 94306 USA), 1982, pp. 496, Price: USA, \$22.00, Elsewhere \$25.00.

The reviews cover a wide range of subjects of topical interest. Epidemiology of cancer receives special attention. The wide international variation in cancer incidence, has suggested that bulk of human cancer is related to environmental factors and is not an inevitable consequence of aging process. This notion has provided a great stimulus to etiological research by indicating that cancer is in principle, a preventable disease.

Cigarette smoking has become the outstanding single cause of disease in Industrial Nations. Cigarette smoking has sociological, physiological and psychological determinants. The interrelationship of all these must be understood in order to control the behaviour. Control of cigarette smoking from psychological, medical, social and public health perspectives is presented in a number of reviews.

The epidemiological studies contain evidence that supports to causal relationship between chlorinated organic contaminants in drinking water and, rectal, colon and bladder cancers. These aspects, as also the

public health hazards associated with the use of water, safety of water disinfection, protection provided by engineering controls of such hazards, the problems of drinking water supply and waste water management are subject matters of some reviews.

"Low cost medical practices", "The New Health Profession" and "Health Education in Schools" are informative reviews on the recent developments in National health care in U.S.A.

The rapidly growing numbers of old people in U.S.A. and their disproportionate contribution to the steadily rising cost of health care have focussed considerable attention on the health problems and needs of this segment of population. Some insight into these problems is provided in the review "Defining Health problems of the Elderly".

The efforts now being made by community psychiatric services to treat chronic mental patients and the efforts of State mental hospitals in providing care services in U.S.A. are described in "The Chronically Mentally Disabled and Deinstitutionalization".

If genetics is to play a part in health maintenance, the pertinance must be recognised by the profession and public alike. "Control of Hereditary Disorders" reviews the burden of genetic disease, screening for genetic disorders and genetic counselling.

Other topics covered are "Reproductive Toxicity of Environmental Agents", "Labour-Management aspects of occupational risk" and "Design and Analysis of Case-control Studies".

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Pteridophyta — A New Look: By O. P. Sharma. Published by Pragati Prakashan, Meerut, 1981, pp. 278, Price: Rs. 11.60.

This book under review covers a detailed study of Pteridophytes. A well written introduction is followed by 11 chapters in which, the first 5 chapters deal with a discussion on the general topics, while the other chapters deal in detail the distribution, morphological characters and life cycle of the type forms. Emphasis is laid on the genera that are available in India. Each chapter is followed by a bibliography which facilitates further study.

Exhaustive information of Sphenopsida is given in chapter 10. In addition to a detailed description of the morphology of *Equisetum* the author has supplied up-to-date information of Indian fossil members of the Sphenopsida.

Classification of Pteridophytes is well written. A comprehensive account of the classifications adopted by Eames (1936), Cronquist Takhtajan and Zimmermann (1966), Reimers (1954) and Holttum (1971), have been discussed in detail.

The text is well illustrated with good drawings. The book is useful and the information that is given is valuable for the graduate students of Botany.

A fairly large number of misprints and grammatical errors have crept into the book. Since, such a text book is expected to be read by a large number of students, it is hoped that in subsequent editions an attempt would be made to edit the book with greater care and the thoroughly.

Despite these blemishes the book is commended to the B.Sc. and B.Sc. (Hons.) students of Botany.

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ERRATA

Current Science, Vol. 51, No. 19 (October 5, 1982) page 932 righthand coloumn line 5 from the top $D_3 D_2 D_1 D_0$ should read as $D_3 > D_2 > D_1 > D_0$.

Figure 3 Caption: should read as follows—Temperature variation of fluorescence intensity of $\text{LaCl}_3: \text{Eu}^{3+}$ (0.3%) for ——— D_3 , ——— D_2 , -.-.-.- D_1 and -x-x-x-x- D_0 .