1. Record Nr. UNINA9911020416803321

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Titolo	Aquatic Animal Nutrition : Plant Compounds and Dietary Obstacles / / by Christian E. W. Steinberg
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2025
ISBN	3-031-97988-5
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (967 pages)
Disciplina	577.6 577.7
Soggetti	Freshwater ecology Marine ecology Animal culture Food - Analysis Animal biotechnology Freshwater and Marine Ecology Animal Science Food Analysis Animal Biotechnology
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1. Plant Compounds, Structures, Visions: ‘Only for Vegetarians?’ -- Chapter 2. Carotenoids: ‘Only for Beauty Fans?’ -- Chapter 3. Phenolic Compounds: ‘More than Longevity Drugs?’ -- Chapter 4. Alkaloids: ‘Dope or Medication?’. - Chapter 5. Selected Terpenes and More: ‘Again Dope or Medicine?’ -- Chapter 6. How Phytochemicals Work A Brief Overview: ‘Don’t Care About Details if Eating Pleases’ -- Chapter 7. Phyto- and Mycosterols: 'Benefit or Risk?’ -- Chapter 8. Cyanobacteria and the Food Chain: 'Cyanobacteria are Also Not Eaten with Pleasure’ -- Chapter 9. Mycotoxins: ‘Another Noli Me Tangere’.
Sommario/riassunto	Based on positive experiences in human nutrition and healthy aging, individual and combined plant secondary metabolites are added to aquafeeds. The main compounds used are carotenoids, polyphenols,

terpenes, and various alkaloids. The pile of supplementation studies with beneficial results is growing rapidly. These benefits include increased immunity, pathogen resistance, or improved gut microbiome diversity. However, a variety of adverse results cannot be ignored. Overall, in Aquatic Animal Nutrition research, this is another area of that is still in its early stages: as with supplementation of plant preparations (Aquatic Animal Nutrition – Plant Preparations), a robust and guiding hypothesis for supplementation is not apparent, and graded dosing is rarely used, especially in the low-dose range. Often, the high doses used lead to the classification of various compounds as anti-nutritional. However, appropriate low-dose supplementation demonstrates that and how aquatic animals can cope with ‘anti-nutritional’ factors within their adaptive response, indicating that even these compounds may have some nutritional value. In addition, knowledge of the underlying mechanisms of the adaptive response may provide physiological, transcript-omic, and epigenetic means to more sustainably utilize even this ‘worthless’ food source. The importance of the intestinal microflora is becoming increasingly clear and points to the imperative need to include gut microbiota in replacement studies. Based on the few epigenetic studies currently available, the importance of these processes is demonstrated. The need to integrate such approaches into future studies is emphasized. The so-called hologenomics approach is inevitable. Supplementing aquafeed with terrestrial plant material can introduce toxins and endocrine disruptors. The addition of adsorptive compounds (clay minerals) or functional feed ingredients (prebiotics, probiotics) can at least partially mitigate the adverse effects.