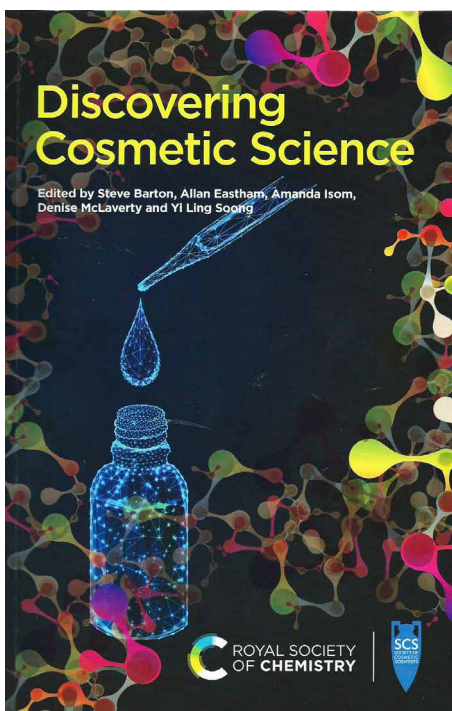


BOOK REVIEWS



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Discovering Cosmetic Science

Dr Tony Curtis

Here is yet another wonderful book from the Royal Society of Chemistry. With many texts costing over £100 it is truly remarkable that the publishers have been able to keep the price down to a very affordable student price of £19.99. It is interesting to note the increasing complexity of writing in the aroma trades context (possibly in others!). I have in my library archive a 7th Edition (1974) of *Poucher's Perfumes, Cosmetics and Soaps* (all three volumes). The first edition was published in 1923 and this 7th Edition was revised by a single person, George Howard. To give appropriate coverage to this topic now, no less than five editors have been involved with 20 contributors!

As with *Olive Oil* (reviewed on page 28) the use of colour illustrations and figures greatly improves the book over early publications on this subject. This is most important as, unlike Poucher, this is intended to be a student friendly, readable publication. Poucher was not

a 'good read' and was never intended to be: it was a 'bible' reference text. I have Volume 3 open as I write this review. There are no chapters: it is a dictionary of aroma and cosmetic materials from:

[Abies Oils](#) (see under [Pine Needle Oils](#)) [page 1] to [Zinc Stearate](#) [page 381].

These three volumes were a 'must have' for a Cosmetic Scientist in the 20th century. Now such reference material is only a click away in a Google search. The need for such dictionary works has been replaced with, in some ways a more difficult challenge, accessible but authoritative material for a wider audience.

In my review of *Olive Oil*, I said the book ticked all the boxes for a good text (well-illustrated, free of errors etc.). For Cosmetic Scientists this book also ticks these standard boxes for content and coverage in chapters one to seven. However, the publishers and editors have been much

more ambitious and have addressed some controversial issues head-on, where ignorance has triumphed over knowledge and understanding. The book *Ingredients* suggests an important question to ask in addition to 'What a product contains?' is 'Why is this ingredient formulated into this product?' Enter the magnificent Chapter 8 *The Inside Story – The Science Behind Active Ingredients*. I focus here on two fallacies often quoted by sceptics: 'Antioxidants and antimicrobials are bad for you.' As I understand the scientific results, limonene is not a major problem in itself. However, limonene (in common with many unsaturated hydrocarbons) is very susceptible to free radical oxidation when exposed to air. Terpene hydroperoxides are a major issue in skin sensitization. If the conditions of test and / or the storage of test samples are not rigorously controlled, we are measuring the effect of the degraded product(s), not the original

test material (e.g. limonene). Free radical oxidation is a well-understood chemical process and its control and mitigation is to use antioxidants. Yet we find food and other products such as cosmetics that may state free of preservatives and antioxidants as a 'beneficial' claim! The book addresses such issues as:

- What is oxidation and so how do antioxidants work?
- What happens if cosmetics are not preserved? How do companies know if their products remain safe if they become contaminated?

People are entitled to dissenting views and opinions but as Covid-19 myths have demonstrated, fallacious assertions are not helpful. If conventional practice is to be challenged, such debates need to be anchored in an understanding of the mechanisms of product deterioration, the risks that may be involved and the control of risks.

Chapter 9 *Testing and More Testing: The Science Behind Keeping Your Skin Safe and Healthy* continues this addressing a series of important issues such as:

- Cosmetic products – how we keep you and your skin safe and healthy
- Stability testing- making sure product is fit for purpose
- Safety assessment of cosmetic ingredients and finished products

These chapters lay the foundation to the final important chapter: *Myths and Scares – Science in Perspective: Are cosmetics tested on animals, what is the difference between natural and synthetic ingredients, do cosmetics pollute the oceans? All of these are legitimate issues, but the debate needs to be based on a real understanding of the science and the issues. Preservative-free cosmetics may sound nice, but they can be injurious to wellbeing. If the Covid-19 pandemic has highlighted anything, it is the need for widespread understanding of problems such as risk management. There are many debates to be had but they will be more fruitful if people have proper information and understanding. Terpene hydrocarbons are prone to oxidation (i.e. oils such as lemon oil) and hydroperoxides (formed from oxidation) are powerful*

skin sensitizers. If we want to enjoy products, how do we control risk? As IFRA aims, we need to bring insight into the safe enjoyment of fragrances [and fragranced products].

One of the questions asked of reviewers is 'Does the book provide fair coverage of the subject?' This book does highlight a gap in academic writing and education provision for the industry. *Discovering Cosmetic Science* does what it says on the tin. It does provide excellent accessible cover of the subject. However, it leaves a yawning gap in the application of perfumes. I live in Plymouth in the South West of the UK. It has a glorious harbour and very expensive apartments lookout across Plymouth Sound to the Breakwater. Some of these apartments have pride of place in their windows for expensive telescopes to better enjoy the movements of ships in and out of the harbour. However, if you look through a telescope the wrong way round you get a very different view! Sometimes Perfumery is seen as a part of Cosmetic Science. The link is obvious with fine fragrances, cosmetics and personal care products. This is generally the view from Cosmetic Science. Go into any major full service Creative Perfumery House and you will find many activities that do not fall into this personal care scope of perfumery. Some will maintain that Cosmetic Science does focus on areas such as surfactants and this translates directly into fabric care. This is only partially true. The problems of cleaning and caring for bleached dyed hair are rather different to removing blood stains from poly-cotton. You do not see enzymic shampoos on the supermarket shelf. Move down an aisle and we may have air-fresheners. These, candles and agarbathies are also important and valuable non-cosmetic markets for fragrances. This is not in any way a criticism or to detract from *Discovering Cosmetic Science*. Rather a plea that another book is needed to cover perfume applications outside of the coverage given within Cosmetic Science to personal care products. There is also an academic need for Universities to provide modules for these areas. There is a major

requirement in the global industry for such provision which at the moment appears almost totally lacking.

I would like *Discovering Cosmetic Science* to be on the shelves of any journalist who intends to write about fine fragrances or beauty products. It is of course a 'must have' for all serious students and professionals in the industry. At £19.99 it is a good buy and a fulfilling read.