



# **Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis**

*Vladimir Savic*

Download now

[Click here](#) if your download doesn't start automatically

# Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis

Vladimir Savic

## Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis Vladimir Savic

The discovery of abyssomicin class of natural products has been the outcome of the search for secondary metabolites possessing inhibitory effect on p-aminobenzoic (pABA) acid biosynthesis, a biosynthetic pathway found in many microorganisms but not in humans. The earliest members of this family, abyssomicins B, C, and D, were isolated from the marine actinomycete *Verrucospora* AB-18-032, collected from a sediment sample from Japanese sea at 289m depth. Abyssomicin C was the first natural product to act as an inhibitor of the enzymes involved in pABA and folic acid biosynthesis. In addition to these initial members of the family, other related compounds were also isolated and characterized: atrop-abyssomicin C, abyssomicins G, H, E, I, J, K, and L. Interestingly, only abyssomicin C and atrop-abyssomicin C, which was initially discovered during the synthesis of the former compound and later isolated from the fermentation product, show activity against Gram-positive bacteria. The structural resemblance of abyssomicins to the chorismic acid transition state analogues is evident, while distinctive activity is related to the presence of the conjugated ketone functionality. The structural novelty of abyssomicins and very promising biological properties spurred interest among synthetic organic chemists. The complex molecular architecture and a number of challenging structural elements, such as a fused tetronate bicyclic core with a strained 11-membered macrocyclic ring, necessitate a conscientious synthetic plan and several routes were reported in the literature. Intramolecular Diels–Alder reaction was used in the biomimetic synthesis as a strategically major step in building the polycyclic skeleton (below scheme, path A). The diene functionality was attached to the tetronic moiety possessing the exocyclic double bond to set a scene for the key cycloaddition step, which then afforded the core abyssomicin structure in a highly regio- and diastereoselective manner. Further elaboration of the cycloadduct produced the abyssomicin C. Related but different strategy employed the Lewis acid-templated intermolecular Diels–Alder reaction to assemble a highly substituted cyclohexane product (above scheme, path B). The cyclohexane ring formation via the cycloaddition reaction was followed by introduction of the tetronic moiety to form the spiro compound. The macrocyclic ring was then introduced by combining the nucleophilic properties of 2-Li-tetronate and the ring-closing metathesis as key transformations. An alternative approach to the Diels–Alder reaction employed an intramolecular variant of the nucleophilic displacement onto the  $\pi$ -allyl palladium complex to afford a highly substituted cyclohexane derivative (above scheme, path C). Further elaboration of this product provided access to the spirotetronic derivative via an attractive gold-catalyzed cyclization of the propargyl compound. Final assembly of the macrocyclic ring was accomplished employing the nucleophilic properties of 2-Li-tetronate and, in this instance, a particularly impressive Nozaki–Hiyama–Kishi reaction.

 [Download Studies in Natural Products Chemistry: Chapter 5. ...pdf](#)

 [Read Online Studies in Natural Products Chemistry: Chapter 5 ...pdf](#)

## **Download and Read Free Online Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis Vladimir Savic**

---

### **From reader reviews:**

#### **Patricia Smith:**

What do you with regards to book? It is not important along? Or just adding material when you want something to explain what your own problem? How about your time? Or are you busy man or woman? If you don't have spare time to accomplish others business, it is gives you the sense of being bored faster. And you have free time? What did you do? Everybody has many questions above. The doctor has to answer that question simply because just their can do in which. It said that about book. Book is familiar in each person. Yes, it is appropriate. Because start from on pre-school until university need this particular Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis to read.

#### **Oliver Watts:**

Playing with family within a park, coming to see the coastal world or hanging out with pals is thing that usually you have done when you have spare time, in that case why you don't try issue that really opposite from that. A single activity that make you not sense tired but still relaxing, trilling like on roller coaster you already been ride on and with addition info. Even you love Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis, it is possible to enjoy both. It is excellent combination right, you still desire to miss it? What kind of hang-out type is it? Oh occur its mind hangout fellas. What? Still don't obtain it, oh come on its identified as reading friends.

#### **Margaret Bonner:**

Your reading sixth sense will not betray an individual, why because this Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis publication written by well-known writer who knows well how to make book that could be understand by anyone who also read the book. Written within good manner for you, dripping every ideas and writing skill only for eliminate your own hunger then you still question Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis as good book not merely by the cover but also with the content. This is one e-book that can break don't assess book by its handle, so do you still needing a different sixth sense to pick this!?! Oh come on your reading through sixth sense already alerted you so why you have to listening to yet another sixth sense.

#### **Roger Sowa:**

On this era which is the greater man or who has ability to do something more are more special than other. Do you want to become certainly one of it? It is just simple solution to have that. What you have to do is just spending your time not very much but quite enough to possess a look at some books. One of the books in the top record in your reading list is actually Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis. This book and that is qualified as The Hungry Slopes can get you closer in turning out to be precious person. By looking upward and review this book you can get many advantages.

**Download and Read Online Studies in Natural Products Chemistry:  
Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis  
Vladimir Savic #CK302BUWH4J**

## **Read Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis by Vladimir Savic for online ebook**

Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis by Vladimir Savic Free PDF d0wnl0ad, audio books, books to read, good books to read, cheap books, good books, online books, books online, book reviews epub, read books online, books to read online, online library, greatbooks to read, PDF best books to read, top books to read Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis by Vladimir Savic books to read online.

## **Online Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis by Vladimir Savic ebook PDF download**

**Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis by Vladimir Savic Doc**

Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis by Vladimir Savic Mobipocket

Studies in Natural Products Chemistry: Chapter 5. Abyssomicins: Isolation, Properties, and Synthesis by Vladimir Savic EPub