

# Compound from Myrtles Synthesized: Successful Total Synthesis of Myrtucommulone A

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(PhysOrg.com) -- Myrtle has been considered to be a medicinal plant since ancient times. In addition to a number of essential oils, myrtle contains myrtucommulone A, a pharmacologically interesting compound that has antibacterial, analgesic, and strong anti-inflammatory effects, among others. Recent tests also indicate a highly selective cytostatic effect on tumors.

A team led by Johann Jauch has now successfully synthesized myrtucommulone A in the laboratory. As the scientists report in the journal [Angewandte Chemie](#), the synthetic compound has the same anti-inflammatory and cytostatic activity as the natural version.

The myrtle (*Myrtus communis*) is an evergreen shrub native to the Mediterranean region that has small, aromatically scented, leathery leaves, small white flowers, and blue-black berries. The leaves and berries are occasionally used in Mediterranean cooking. Since ancient times, the myrtle, rich in essential oils, has been known as a medicinal plant. Pharmacological researchers are particularly interested in a group of substances, called the myrtucommulones, from the myrtle plant. However, their extraction from the leaves of the myrtle is very difficult and delivers small yields. “The synthetic preparation of myrtucommulones would make these substances available in quantities sufficient to better examine their pharmacological properties,” says Jauch. “Also, we could develop analogues that may be more effective

than the original substances. The strength of the natural substance could thus be augmented.”

The researchers have now succeeded in such a total synthesis. Starting with commercially available starting materials or substances known from the literature, the team from Saarland University in Saarbrücken and the University of Tübingen has now synthesized myrtucommulone A, its natural variants C and F, and an analogue in a one-step reaction. Their structures could be confirmed by means of spectroscopic techniques and a [crystal structure](#) analysis.

“Laboratory tests demonstrated that the synthetic myrtucommulone A has just as strong an anti-inflammatory effect as the natural compound,” says Jauch. “Just like the agent derived from the plant extract, it triggers programmed cell death (apoptosis) in tumor cells.” The scientists next plan to determine the absolute spatial configuration of the compound and to produce and test more analogues.

**More information:** Johann Jauch, Total Synthesis of Myrtucommulone A, *Angewandte Chemie International Edition*, [dx.doi.org/10.1002/anie.200903906](https://doi.org/10.1002/anie.200903906)

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