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Chemical Synthesis of Minor Cannabinoids

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Abstract: The growth in the legal cannabis market has led to an increase in consumer interest not only in major cannabinoids such as CBD and THC, but also the minor cannabinoids, such as THCV, CBDV, CBC, and CBCV. A synthetic approach towards the kilogram-scale production of the minor cannabinoids is highly desirable due to their low concentrations within the common varieties of cannabis sativa. We have developed an innovative strategy for the scalable chemical synthesis of both the major and minor cannabinoids through a common, low-cost starting material. Using a divergent chemistry-based approach, we were able to access the broad structural diversity of both the major and minor cannabinoids through a concise 4-step process.

The details of our work on the large-scale chemical synthesis of a variety of cannabinoids will be discussed. The implications are potentially disruptive to the current hemp-based as our chemistry-based platform is more efficient, has a lower environmental impact, and improves quality and consistency, while avoiding contamination with heavy metals, pesticides, and prohibited substances such as THC, which are often associated with hemp-based sources.