

H203 Antimicrobial Activity of Volatile Flavor Components
from *Agastache rugosa* Leaves

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The volatile flavor components were obtained from *Agastache rugosa* leaves by a simultaneous distillation-extraction(SDE) method. Antimicrobial activity was investigated by disc diffusion and broth dilution methods against several microorganisms, *B. cereus*, *B. megaterium*, *B. subtilis*, *C. xerosis*, *S. aureus*, *S. epidermidis*, *A. rhizogenes*, *A. tumefaciens*, *E. cloacae*, *E. coli*, *S. typhi*, *V. parahaemolyticus*, *C. utilis* and *S. cerevisiae*. Antimicrobial activity of volatile flavor components exhibited to tested microorganisms. Especially, volatile flavor components exhibited strong antimicrobial activity against *Candida utilis* and *Saccharomyces cerevisiae*. And volatile flavor components inhibited growth of tested *C. utilis* and *S. cerevisiae*. During growth period, antimicrobial activity difference of volatile flavor components did not show. After the addition of 0.12% volatile flavor, the growth of *C. utilis* and *S. cerevisiae* showed prolonged lag phase about 6-hour.

H204 Some Factors Influencing Division and Microcalli Formation
from Cucumber Protoplasts

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A method was developed for efficient protoplast culture of cucumber. We pretreated cotyledons and leaves in the solid media (5 mM/2.5 mM) for 15 h before protoplast isolation for stabilization of tissue. Protoplast digestion time was achieved within 5 h using 1.2% cellulase and 0.6% macerozyme R 10. When digestion time was 6 h over, tissues were stressed too much. Protoplast isolation and culture was obviously influenced by age and developmental stage of foliage leaves. The highest division rate obtained from third leaf protoplast of 30 days grown plants. A plating density of 1×10^5 protoplast/ml or higher was required for sustained division. First division occurred 4 days later and second - third division within 7-8 days. High frequency division of the protoplast-derived cells was observed in liquid medium when compared with other culture methods.