

# Supercritical fluid extraction of *Ammi visnaga* L. fruits $\gamma$ -Pyrone

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## Abstract

Extraction with supercritical fluid technique has proved to be effective in many applications including extraction and separation of various active principals from medicinal plants. It was used due to its advantages especially safety, specificity, selectivity and ease of component recovery.

*Ammi visnaga*, L. belongs to the family Apiaceae. The fruits are used specifically for the treatment of kidney stones depending on its  $\gamma$ -Pyrone (mainly khellin and visnagin) [2]. The supercritical fluid extraction technique of khellin and visnagin was investigated and the operating conditions for their extraction were optimized. The effect of different pressure (150, 200, 300, 400 and 500 bars), temperature (35, 40, 45, 50 and 55 °C), particle size (0.5, 1, 1.4 mm and entire fruits) on the extract yield was studied under dynamic conditions for extraction for a run time of 90 min. Optimum supercritical extraction condition was found to be 200 bars at 45 °C, 1.4 mm. The yield is yellowish white bitter powder and measures 1.74% w/w relative to the dried weight of the fruits containing 38.414% w/w average  $\gamma$ -Pyrone content of which 29.4% w/w khellin, and 9.014% w/w visnagin.

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