



APPLICATION NOTE

VCX184F046100

Analysis of Birch Pollen Extract

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Abstract

Pollen are among the most frequent sources of allergy triggers. Especially the major allergen **Bet v 1** from birch pollen of *Betula pendula* (*B. pendula*) has a great impact for allergology since a lot of allergy triggers from other pollen or plant-based foods show structural similarities. Pollen extracts are commonly used for allergy testing. Due to naturally occurring variability between years, for example in temperature or precipitation, or differences in origin, storage or processing, extract composition may vary.^[1]

Keywords

Birch Pollen Allergen
Reversed-Phase Chromatography
Pollen Extract Analysis

Compound Information and Chemical Structures

COMPOUND NAME	CLASSIFICATION
Bet v 1	pollen allergen of <i>Betula pendula</i> / pathogenesis-related PR-10 protein

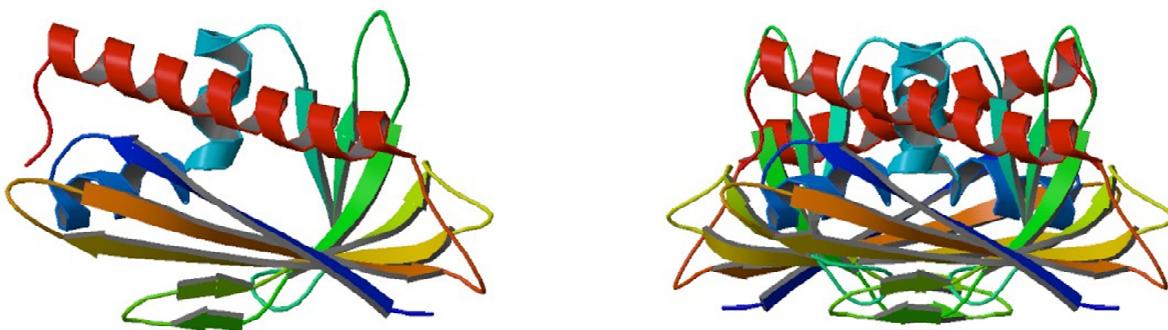


Figure 1. Band model of the major birch pollen allergen **Bet v 1** of *B. pendula* (RCSB PDB: 1QMR). LEFT: asymmetric unit. RIGHT: biological assembly.



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Chromatographic Conditions

COLUMN NAME / PARTICLE SIZE	VDSphер Core Shell Mode C18-AQ 2.5 µm	ORDER NUMBER
LENGTH × INNER DIAMETER	100 × 4.6 mm	VCX184F046100
SEPARATION MODE	Reversed-Phase Chromatography	
MOBILE PHASE	ELUENT A: H ₂ O with 0.05% formic acid (v/v) ELUENT B: MeCN with 0.05% formic acid (v/v)	
ELUTION CONDITIONS	0 – 3 min: 11% B, 3 – 15 min: 11 – 17% B, 15 – 24 min: 17 – 20% B, 24 – 25 min: 20 – 50% B	
FLOW RATE	0.8 mL·min ⁻¹	
INJECTION VOLUME	10 µL	
TEMPERATURE	22 °C	
DETECTION	UV 254 nm Bet v 1	
PRESSURE	175 bar	
HPLC SYSTEM	Shimadzu LC-20A Prominence HPLC Shimadzu Prominence SPD-M20A Diode Array Detector	
SAMPLE PREPARATION	centrifugation and supernatant filtration with 0.2 µm PES filter	

Chromatographic Analysis

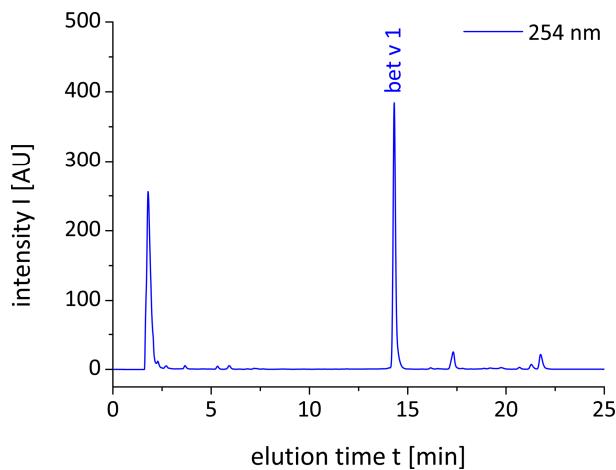


Figure 2. HPLC chromatogram of a birch pollen extract of *B. pendula* containing the major birch pollen allergen **Bet v 1** detected at 254 nm.

References

- [1] J. Kleine-Tebbe *et. al.* in Molekulare Allergiediagnostik, (Ed. J. Kleine-Tebbe, T. Jakob), Springer-Verlag GmbH Berlin Heidelberg, Berlin, Heidelberg [Germany], 2015, pp. 15 – 32.



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