



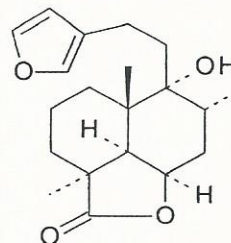
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Certificate Of Analysis

023726S**MARRUBIIN****Lot No.: 17111302**

| | |
|-------------|--|
| CAS RN | 465-92-9 |
| MOL FORMULA | C ₂₀ H ₂₈ O ₄ |
| MOL WEIGHT | 332,44 |



| TEST | METHOD | UNIT | SPECIFICATION | RESULT |
|-------------------|------------------|--------|--|---------|
| Appearance | Visual | | White to beige powder. | Conform |
| Chirality | Optical rotation | ° | $[\alpha]_D = + (45 \pm 5) c=0,5$ in Acetone, 20°C | + 45 |
| Water content | KF | % w/w | | 0,3 |
| Residual solvents | GC-HS | % w/w | | 0,4 |
| Inorganics | ICP-MS | % w/w | | < 0,1 |
| Purity | HPLC | % area | ≥ 98,0 | 99,1 |
| Assay | Calculated (*) | % w/w | | 98,4 |

(*) Assay = Purity by HPLC x (100 - %water - %solvents - %inorganics)

CHROMATOGRAPHIC PURITY / HPLC

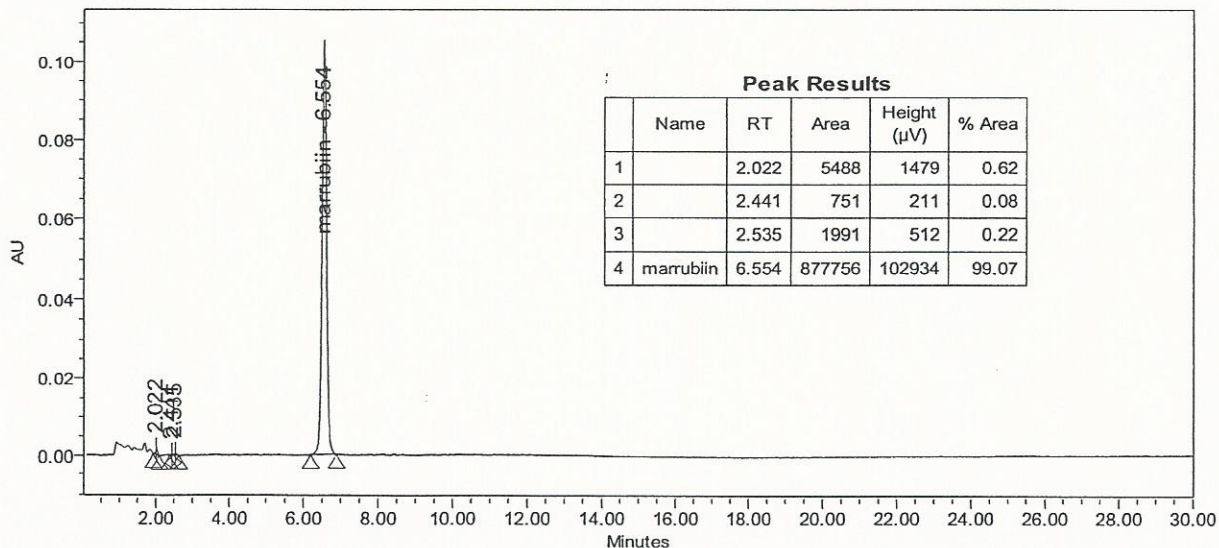
Column : Novapak C18 - 3,9x150 mm - 4 μm
Mobile phase : Water 55 / ACN 45 (v/v)
Detection : UV 210 nm

Temperature : 30°C

Flow rate : 1 ml/min

Injection volume : 5 μl

Injection solvent : EtOH



LONG TERM STORAGE : Below 8°C in a dry and dark place