

# KF Application Note No. K- 29

**Title:** Water in spices (marjoram, nutmeg, pepper)

**Summary:** The water content of spices is determined according to Karl Fischer. To release the water from the cells a high-frequency mixer has to be used.

**Sample:** Dried marjoram, ground nutmeg and pepper

**Sample Preparation:** Pepper corns and nutmegs have to be cooled prior to grinding.

**Instruments and Accessories:** 701 KF Titrino, 720 KFS Titrino or 758 KFD Titrino, 703 Titration Stand, printer, Polytron PT 1200 Disintegrator

**Analysis:** Pour ca. 50 mL dry methanol into the the titration vessel and condition it. Add ca. 0.2 ... 0.4 g sample using a weighing spoon and switch on the PT 1200 Disintegrator for 120 s (extraction time), then carry out the water determination. Exchange the methanol after two determinations.

**Reagents:**

Solvent: methanol (dry)

Titration: Hydranal Composite 5 (Riedel-de Haën)

**Results:**

Marjoram:	AVG(5) = 8.46 +/- 0.06 % water
Nutmeg:	AVG(5) = 6.07 +/- 0.06 % water
White pepper:	AVG(5) = 8.36 +/- 0.07 % water

**Settings:** 701 KF Titrino

>titration parameters

extr.time	120 s
stop crit.:	drift
stop drift	20 uL/min

>preselections

conditioning:	on
req.smpl size:	on
report:	full