

## Determination of Four Anions in the Ground Layer of Tomb Murals by Ion Chromatography

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**Abstract :** The ion chromatography method for the rapid determination of four anions ( $F^-$ ,  $Cl^-$ ,  $SO_4^{2-}$ ,  $NO_3^-$ ) in burial ground poles was optimized. The  $L_9(3^4)$  orthogonal test was used to determine the optimal parameters of sample pretreatment: accurately weigh 2.000g of sample, add 10mL of ultrapure water, and extract for 40min under the conditions of shaking temperature 40°C and shaking speed 180 r·min<sup>-1</sup>. The eluent was 25 mmol/L KOH solution, the analytical column was Ion Pac® AS11-SH (250 mm × 4.0 mm), and the purified filtrate was measured by a conductivity detector. Under this method, the detection limit of each ion is 0.066~0.078mg/kg, the relative standard deviation is 0.86%~2.44% (n=7), and the recovery rate is 94.6~101.9.

**Keywords :** ion chromatography, tomb, anion ( $F^-$ ,  $Cl^-$ ,  $SO_4^{2-}$ ,  $NO_3^-$ ), environmental protection

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