extraction employing Chromosorb P column. And then the remaining active hydrogen atoms of amines were converted to pentafluoropropionyl derivatives for the direct analysis by gas chromatography (GC) on dual-columns with different polarities. The dual GC system provided complete separation of amines and phenols with characteristic I sets. Under the optimized conditions, the present method was well-validated for the simultaneous assay of 30 amines and 20 phenols from aqueous samples. When applied to urine specimens from patients with various metabolic disorders and cancer, amines and phenols for each disorder were simultaneously screened. The present method is expected to be useful for the simultaneous screening for phenols and amines in urine from patients with metabolic disorders including cancer.

[OE1-1] [2004-10-22 15:00 - 15:15 / Room 205]

^{99m}Tc-MAG$_3$-2-nitroimidazole accumulates in hypoxic tumor in mouse model

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^{99m}Tc-2-nitroimidazole derivatives have been reported to accumulate in hypoxic tissue. We prepared a novel ^{99m}Tc-MAG$_3$-2-nitroimidazole and evaluated the feasibility for hypoxia imaging agent.Bz-MAG$_3$-2-nitroimidazole was synthesized by direct coupling of Bz-MAG$_3$ and 2-nitroimidazole using dicyclohexylcarbodiimide. Bz-MAG$_3$-2-nitroimidazole was labeled with ^{99m}Tc in the presence of tartaric acid and $SnCl_2$ at 100°C for 30 min. And the reaction mixture was purified by C18 Sep-pak cartridge. The labeling efficiency and the radiochemical purity were checked by ITLC-SG/acetonitrile. The tumor was grown in balb/c mice for 8~13 days after the subcutaneous injection of tumor cells, CT-26 ($1'10^7$ cell/0.1 ml). Biodistribution study and tumor autoradiography were performed in the xenografted mice after i.v injection of 74 kBq/0.1 ml and 19 MBq/0.1 ml of ^{99m}Tc-MAG$_3$-2-nitroimidazole, respectively. The labeling efficiency was 45±20%. Paper electrophoresis confirmed negative charge of ^{99m}Tc-MAG$_3$-2-nitroimidazole. The stability of ^{99m}Tc-MAG$_3$-2-nitroimidazole was 98% at room temperature for 6 hr, and its protein binding was 53%. The ^{99m}Tc-MAG$_3$-2-nitroimidazole exhibited high uptake in the liver, stomach and intestine. The uptake (% ID/g) in the tumor were 0.5±0.1, 0.4±0.0, 0.2±0.1 and 0.1±0.1 at 5, 15, 30 min and 4 hrs, Tumor/muscle ratio were 1.4±0.1, 2.2±0.83, 3.0±0.9, and 3.7 (n=2) for 5, 15, 30 min and 4 hrs. The uptake in hypoxic area was found higher than in non-hypoxic area of tumor tissue by autoradiography.^{99m}Tc-MAG$_3$-2-nitroimidazole was successfully synthesized and found feasible for imaging hypoxia.