Electronic Supplementary Material (ESI) for RSC Advances

Supporting information

"One step" approach for preparation of octadecyl-silica hybrid monolithic column via non-hydrolytic sol-gel (NHSG) method

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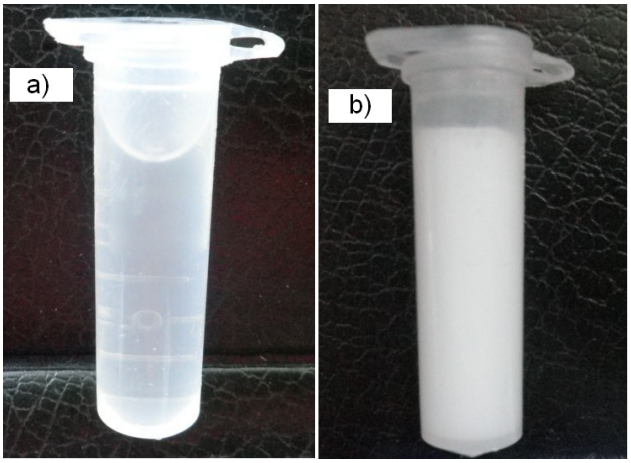

Fig. S-1 Comparison of the preparation of hybrid monoliths (a) without formic acid and (b) with formic acid. Other preparation conditions: 300 μL ACN, 100 μL γ-MAPS, 60 μL dodecanol, 30 μL SMA, and 2wt% AIBN; temperature, 50 ºC.

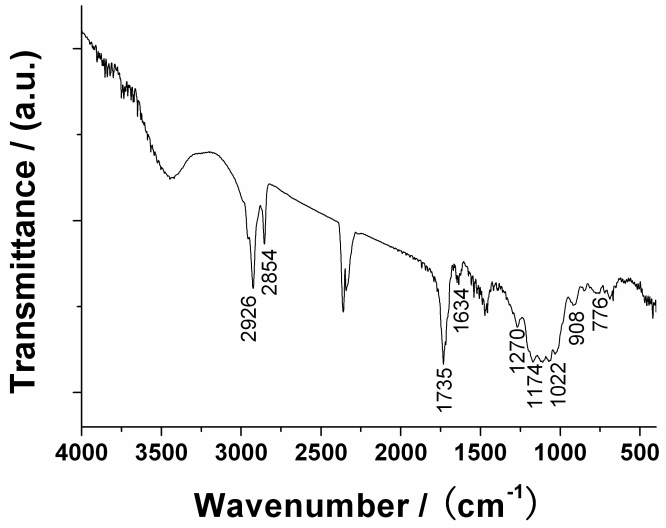

Fig. S-2 FTIR spectra of the silica monolith prepared by NHSG method.

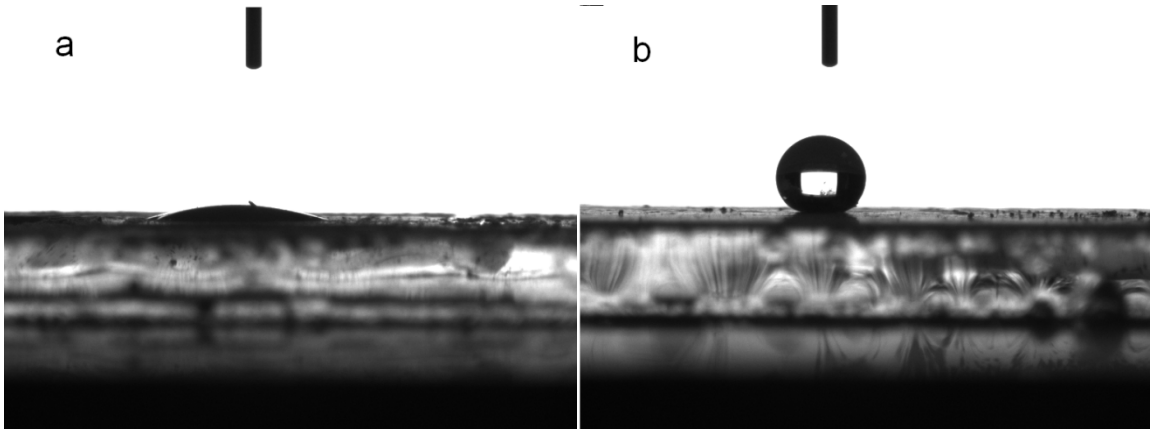

Fig. S-3 The water contact angle photos of (a) hybrid monolith prepared without adding organic monomer in the prepolymerization mixture and (b) C18-silica hybrid monolith.

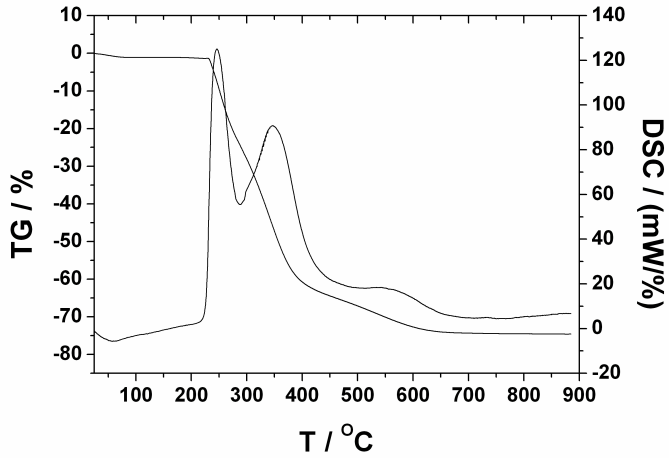

Fig. S-4 Thermal gravimetric analysis of C18-silica hybrid monolith at a heating rate of 10 ^{o}C min^{-1} under air atmosphere.

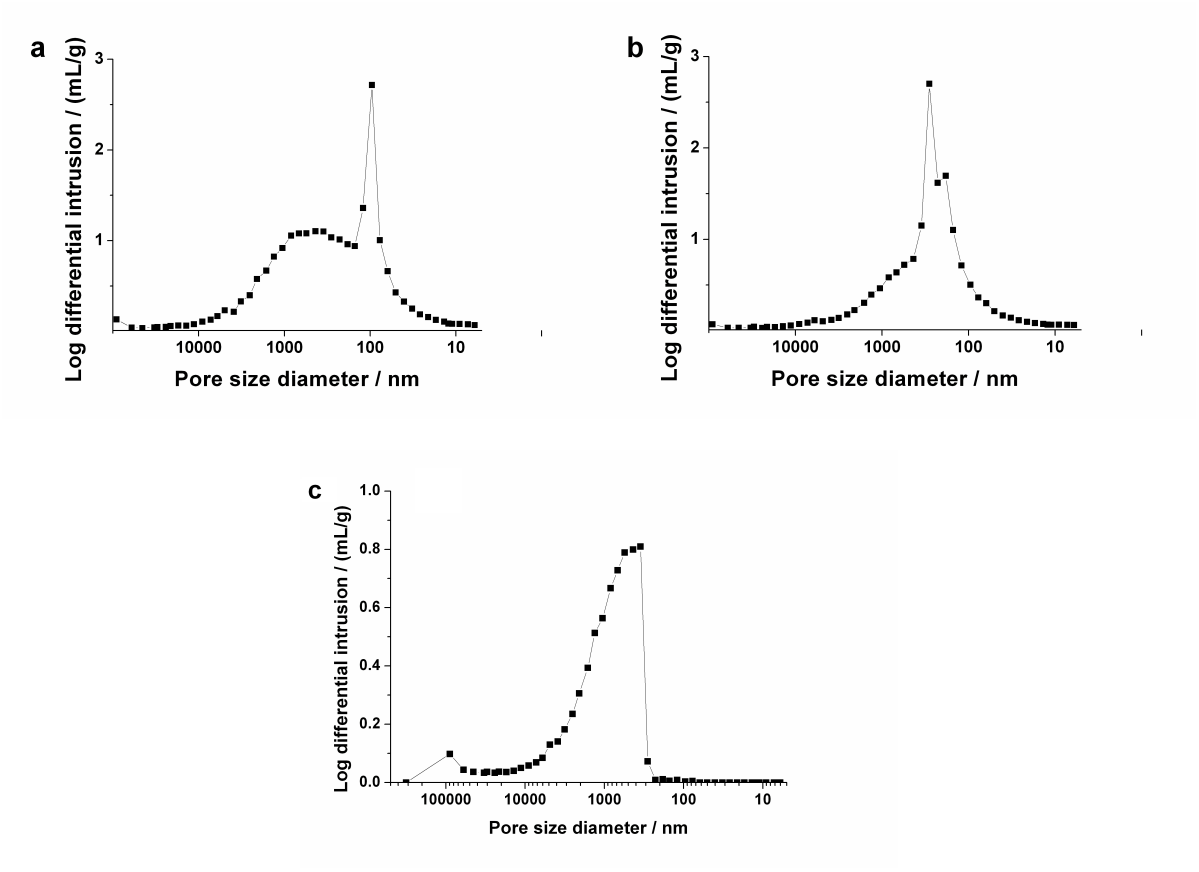

Fig. S-5 Differential pore size distribution curves of (a) monolith-2 (b) monolith-4 and (c) monolith-8 measured by mercury porosimetry.

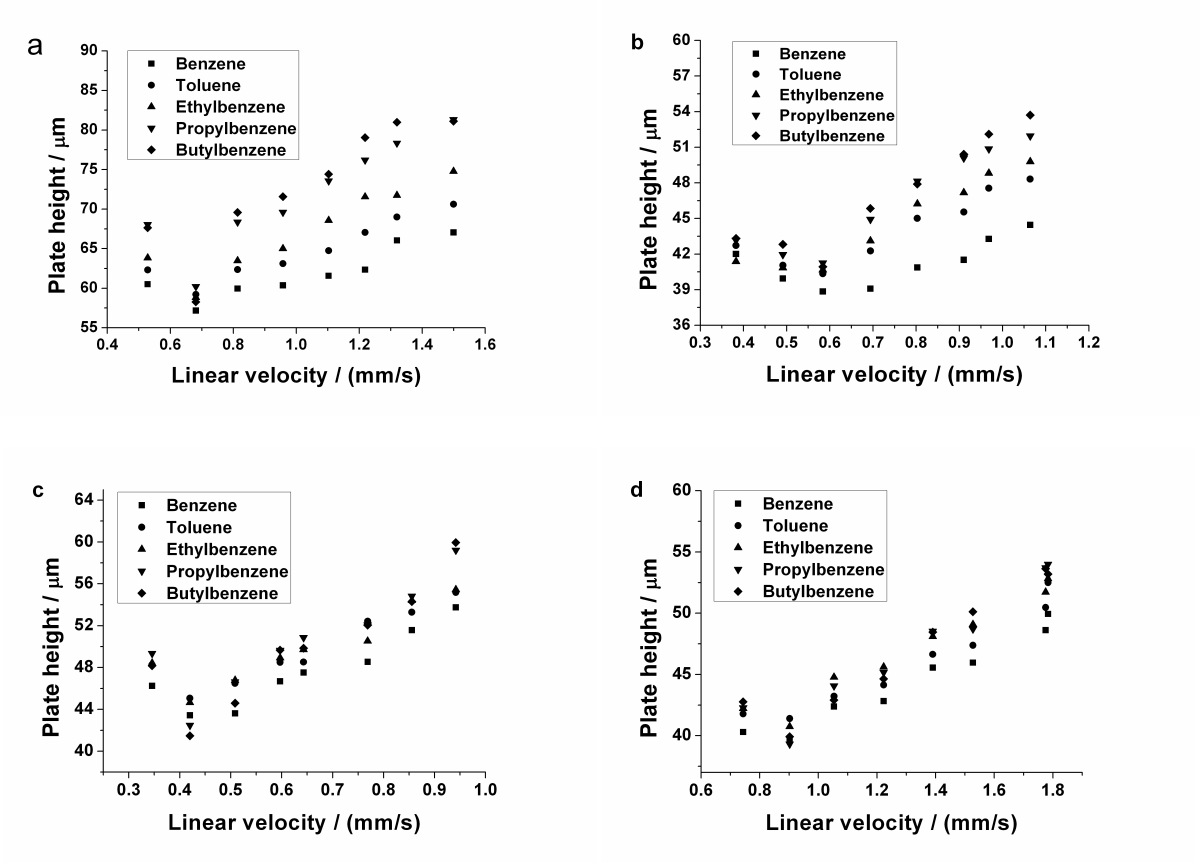

Fig. S-6 Dependence of the plate height of the C18-silica hybrid monolithic capillary columns prepared under the different conditions on the linear velocity of mobile phase. (a) monolith-4, (b) monolith-2, (c) monolith-5, (d) monolith-7. The conditions for preparation of monoliths as in Table 1. Experimental conditions: effective length of 30 cm×75 i.d.; off column, 6 cm×50 μm i.d.; mobile phase, ACN/H_2O=70/30; detection wavelength, 214 nm.

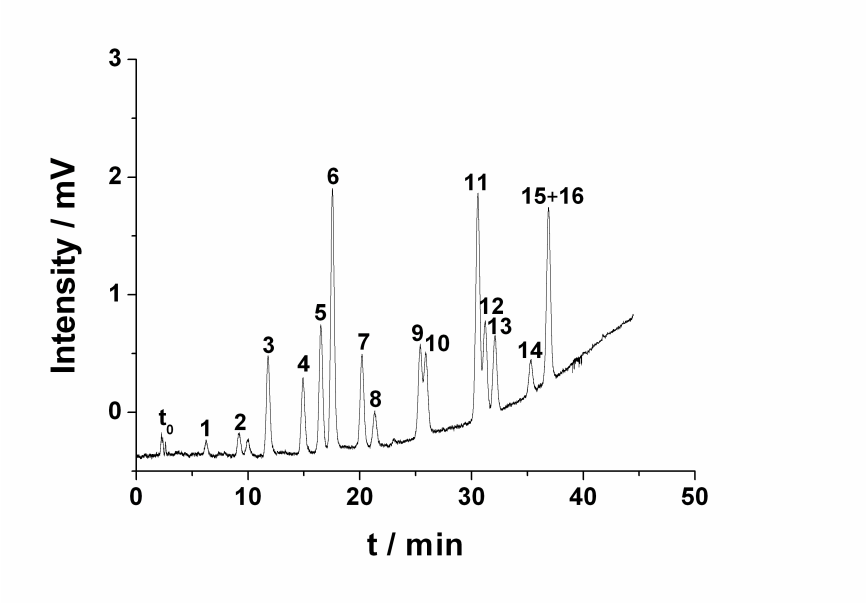

Fig. S-7 Separation of EPA 610 on the packed C18 column by cLC with gradient elution. Solutes: (1) naphthalene, (2) acenaphthylene, (3) acenaphthene, (4) fluorene, (5) phenanthrene, (6) anthracene, (7) fluoranthene, (8) pyrene, (9) benzo(a)anthracene, (10) chrysene, (11) benzo(b)fluoranthene, (12) benzo(k)fluoranthene, (13) benzo(a)pyrene, (14) dibenzo(a,h)anthracene, (15) benzo(g,h,i)perylene, (16) indeno(1,2,3-cd)pyrene. Experimental conditions: effective length of 21 cm×75 μm i.d.; off column detection, 6 cm×50 μm i.d.; mobile phase A, water; mobile phase B, ACN; gradient, 60% B to 100% B in 30 min; flow rate, 120 μL/min (before split); detection wavelength, 254 nm.

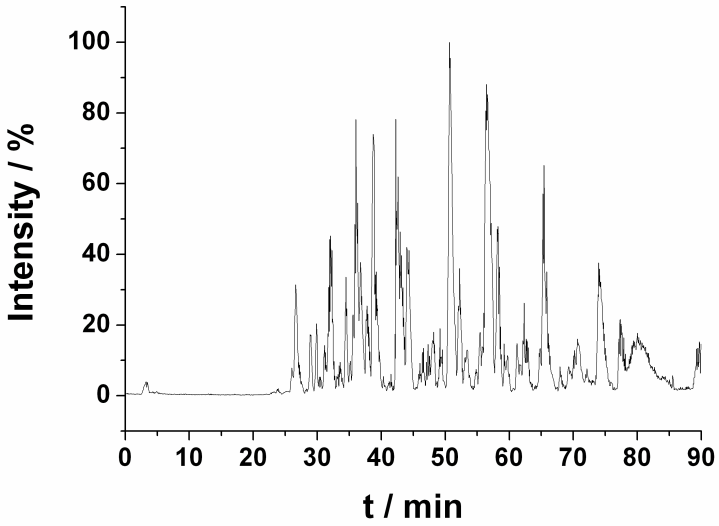

Fig. S-8 Base peak chromatogram of cLC-MS/MS analysis of BSA tryptic digests on the C18-silica hybrid monolithic column. Experimental conditions: effective length of 30 cm×75 μm i.d.; mobile phase, buffer A, water with 0.1% FA; buffer B, ACN with 0.1%FA; the gradient with buffer A and buffer B was developed from 0 to 5% buffer B for 2 min, from 5% to 35% for 90 min, and from 35% to 80% for 5 min.