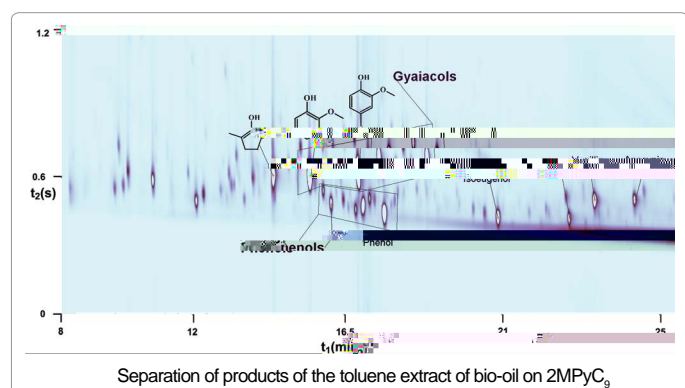




2MPyC <sub>9</sub>	6.18	3.80	1.55	92
4MPy	4.78	3.58	1.58	84
	3.18	0.33	1.95	51



- 189-205.
- Onorevoli B, Machado ME, Dariva C, Franceschi E, Krause LC, et al. (2014) A one-dimensional and comprehensive two-dimensional gas chromatography study of the oil and the bio-oil of the residual cakes from the seeds of *Crambe abyssinica*. Ind Crop Prod 52: 8-16.
- pyrolysis liquids from brown coal using comprehensive gas-chromatography mass-spectrometry. Fuel 116: 841-849.
- selectivity of ionic liquid stationary phases for enhanced separation of nonpolar analytes in kerosene using multidimensional gas chromatography. Anal Chem 86: 3717-3721.
- Omais B, Courtiade M, Charon N, Ponthus J, Thiébaud D (2011) Considerations on orthogonality duality in comprehensive two-dimensional gas chromatography. Anal Chem 83: 7550-7554.
- ík J, Gorovenko R, Špáňík I, Sandra P, et al. (2014) comprehensive two-dimensional gas chromatography. J Chromatogr A 1349: 135-138.
- Stihle J, Uzio D, Lorentz C, Charon N, Ponthus J, et al. (2012) Detailed characterization of coal-derived liquids from direct coal liquefaction on supported catalysts. Fuel 95: 79-87.
- biomass pyrolysis oils by adding aqueous salt solutions. Energy Fuels 23: 3307-3312.
- hydrodeoxygenated oils by two-dimensional gas chromatography and time-of-
- Schneider JK, da Cunha ME, dos Santos AL, Maciel GP, Brasil MC, et al. (2014) Comprehensive two dimensional gas chromatography with fast-quadrupole mass spectrometry detector analysis of polar compounds extracted from the bio-oil from the pyrolysis of sawdust. J Chromatogr A 1356: 236-240.
- Michailof C, Sfetsas T, Stefanidis S, Kalogiannis K, Theodoridis G, et al. (2014) Quantitative and qualitative analysis of hemicellulose, cellulose and lignin biomass spectrometry. J Chromatogr A 1369: 147-160.
- mass spectrometry. Atmos Chem Phys 15: 1865-1899.
- Cunha ME, Schneider JK, Brasil MC, Cardoso CA, Monteiro LR, et al. (2013) Analysis of fractions and bio-oil of sugar cane straw by one-dimensional and two-dimensional gas chromatography with quadrupole mass spectrometry (GC x GC/qMS). Microchem J 110: 113-119.
- Cordero C, Rubiolo P, Sgorbini B, Galli M, Bicchi C (2006) Comprehensive two-dimensional gas chromatography in the analysis of volatile samples second dimension column coated with mixed stationary phases on system orthogonality. J Chromatogr A 1132: 268-279.
- Shashkov MV, Sidelnikov VN (2013) Properties of columns with several pyridinium and imidazolium ionic liquid stationary phases. J Chromatogr A 1309: 56-63.

- 
16. MS analysis of volatile compounds in herbal plants. *Anal Bioanal Chem* 388: 889-899.
  17. phase extraction and separation: a review. *Anal Chim Acta* 715: 19-41.
  18. Omais B, Courtiade M, Charon N, Thiébaud D, Quignard A, et al. (2011) Investigating comprehensive two-dimensional gas chromatography conditions to optimize the separation of oxygenated compounds in a direct coal liquefaction middle distillate. *J Chromatogr A* 1218: 3233-3240.
  19. aromatic sulfur heterocycles on immobilized ionic liquid stationary phases. *J Chromatogr A* 1361: 255-264.
  20. 2. Physicochemical composition of product liquid. *Energy Fuels* 17: 433-443.
  21. Shashkov MV, Sidel'nikov VN (2012) Single cation ionic liquids as high polarity thermostable stationary liquid phases for capillary chromatography. *Russ J Phys Chem A* 86: 138-141.
  22. Comprehensive two-dimensional gas chromatography using a high-temperature phosphonium ionic liquid column. *Anal Bioanal Chem* 390: 323-332.
  23. gas chromatography of hydrocarbons up to n