Effect of Hexane on the synthesis of nanographene using liquid plasma

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In the present work, the effect of hexane (C\textsubscript{6}H\textsubscript{14}) on the synthesis of nanographene using liquid plasma was investigated. To achieve this, hexane was added (from 0 to 50\%) to a solution of ethanol which is used as a carbon precursor. After 20 minutes of plasma exposure, nanographenes were produced in the solution. The synthesis rate was determined. And the synthesized nanographenes were analyzed through Raman spectroscopy, GC-MS and so on.

Fig. 1 presents the synthesis rate of nanographene versus the concentration of hexane. The increase of hexane concentration enhances the synthesis rate. Fig. 2 shows the Raman spectra of the nanographene. The full width at half maximum value of the G-peak was about 59.5 and 87.5 cm\textsuperscript{-1} for cases 0 and 20\% of hexane concentration, respectively. Addition of hexane to the solution increases the synthesis rate but the quality of synthesized nanographenes is changed.

Fig. 1. Synthesis rate of nanographene versus hexane concentration. Fig. 2. Raman spectra of nanographene synthesized with 0 and 20\% of hexane.