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Synthesis and Characterization of Some Novel Carbazole Schiff Bases (OLED)

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Abstract : Carbazoles have been replaced lots of studies from 1960's to present and also still continues. In 1987, the first diode device had been developed. Thanks to that study, light emitting devices have been investigated and developed and also have been used on commercial applications. Nowadays, OLED (Organic Light Emitting Diodes) technology is using on lots of electronic screen such as (mobile phone, computer monitors, televisions, etc.) Carbazoles were subject a lot of study as a semiconductor material. Although this technology is used commen and widely, it is still development stage. Metal complexes of these compounds are using at pigment dyes because of colored substances, polymer technology, medicine industry, agriculture area, preparing rocket fuel-oil, determine some of biological events, etc. Becides all of these to preparing of schiff base synthesis is going on intensely. In this study, some of novel carbazole schiff bases were synthesized starting from carbazole. For that purpose, firstly, carbazole was alkylated. After purification of N-substituted-carbazole was nitrated to sythesized 3-nitro-N-substituted and 3,6-dinitro-N-substituted carbazoles. At next step, nitro group/groups were reduced to amines. Purified with using a type of silica gel-column chromatography. At the last step of our study, with sythesized 3,6-diamino-N-substituted carbazoles and 3-amino-N-substituted carbazoles were reacted with aldehydes to condensation reactions. 3-(imino-p-hydroxybenzyl)-N-isobutyl -carbazole, 3-(imino-2,3,4-trimethoxybenzene)-N-butylcarbazole, 3-(imino-3,4-dihydroxybenzene)-N-octylcarbazole, 3-(imino-2,3-dihydroxybenzene)-N-octylkarbazole and 3,6-di(α-imino-β-naphthol) -N-hexylcarbazole compounds were synthesized. All of synthesized compounds were characterized with FT-IR, 1H-NMR, 13C-NMR, and LC-MS.

Keywords : carbazole, carbazol schiff base, condensation reactions, OLED
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