Synthesis of 9-chloroacridine under microwave irradiation method 1

In a 250 mL microwave oven flask, a mixture of 1.278 g (0.006 mol) of N-phenylanthranilic acid, 19.781 g (0.131 mol) of phosphorous oxy chloride were taken and subjected to microwave irradiation for 3 min at 65% power (455 W). After completion of the reaction excess of phosphorus oxy chloride was removed by distillation from an oil bath at 140-150 °C under vacuum. After cooling to room temperature the reaction mixture was poured into a well-stirred mixture of 5.21 mL concentrated ammonia, 13 g of crushed ice and allowed to stand for 30 min to precipitate the solid. The precipitate formed was filtered with suction washed three times with saturated sodium carbonate solution and finally with water and dried and crystallized from ethanol.

Yield 65%, mp 210-212 ºC; IR ν max cm\(^{-1}\) (KBr): 3074-3007 (Ar C-H), 1626 & 1529 (Ar C=C), 1286 (C-N), 750 (Ar-CH); ms: m/z 213.03 (100.0%). Anal. Calcd. for C\(_{13}\)H\(_8\)ClN: C, 73.08; H, 3.77; Cl, 16.59; N, 6.56. Found: C, 73.18; H, 3.54; N, 6.45.

Synthesis of 1-[4-(Acridin-9-ylamino)phenyl]ethanone under microwave irradiation method 2

In a 250ml microwave oven flask a mixture of 4.06 g (0.03 mol) of 4-aminoacetophenone, 5.4528 g (0.0256 mol) of 9-chloroacridine and 80 mL of 2-butanol were taken and subjected to microwave irradiation for 3 min at 65% power (455 W). After completion of reaction the reaction mixture was allowed to cool to room temperature then it was poured into 150 mL of ice water. A precipitate formed was filtered by suction, washed with water and dried and crystallized from ethanol.
Yield 61%, mp 249-251 °C; IR ν max cm\(^{-1}\) (KBr): 3192 (N-H), 3070-3000 (Ar C-H), 1635 (C=O), 1604-1516 (Ar C=C), 1271 (C-N), 752 (Ar C-H); ms: m/z 312.13 (100.0%).

Anal. Calcd. for C\(_{21}\)H\(_{16}\)N\(_2\)O: C, 80.75; H, 5.16; N, 8.97; O, 5.12. Found: C, 80.68; H, 5.24; N, 8.83.
Spectra for some synthesized compounds

IR Spectrum of compound 3d

IR Spectrum of compound 3g
IR Spectrum of compound 3i

IR Spectrum of compound 4d
IR Spectrum of compound 4i

IR Spectrum of compound 4j
$^1$H NMR Spectrum of compound 3d

$^1$H NMR Spectrum of compound 3f
$^1$H NMR Spectrum of compound 4d

$^1$H NMR Spectrum of compound 4i
\(^{13}\text{C}\) NMR Spectrum of compound 3d

\(^{13}\text{C}\) NMR Spectrum of compound 3f
$^{13}$C NMR Spectrum of compound 3d
Mass spectrum of compound 4d

Mass spectrum of compound 5p