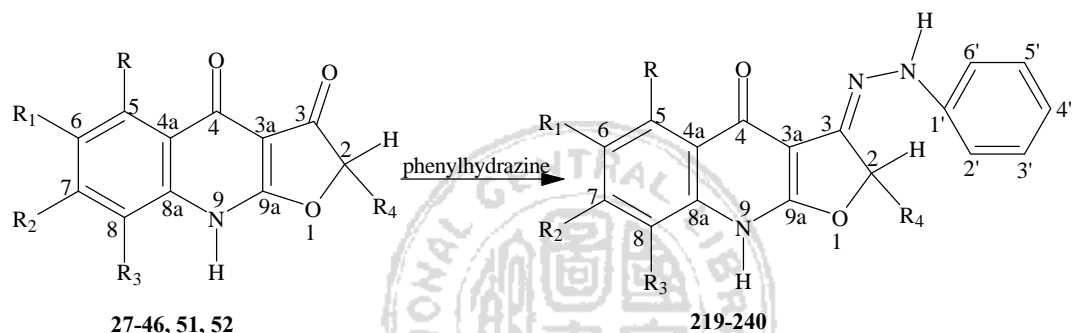


(十六) 2,6,7-Substituted 4-oxo-2,3,4,9-tetrahydrofuro[2,3-*b*]quinolin-3-one phenylhydrazone 類化合物 (219-240) 之合成

取化合物 27-46, 51, 52 分別與 phenylhydrazine 置於 30 ml 絕對酒精中, 加入 1ml 冰醋酸(glacial acetic acid)並迴流 6 小時再減壓濃縮至乾。殘餘物溶於苯(50 ml)中並用 2% 稀鹽酸及水依次萃取, 取苯層再以無水硫酸鎂乾燥並過濾後以減壓濃縮至乾。殘餘物以管柱層析法用溶媒(chloroform)沖提, 再以 95% 乙醇做再結晶得到化合物 219-240。



- |   |   |
|---|---|
| <b>219</b> R=R <sub>1</sub> =R <sub>2</sub> =R <sub>3</sub> =R <sub>4</sub> =H                                  | <b>230</b> R <sub>1</sub> =OC <sub>2</sub> H <sub>5</sub> , R=R <sub>2</sub> =R <sub>3</sub> =R <sub>4</sub> =H     |
| <b>220</b> R <sub>2</sub> =CH <sub>3</sub> , R=R <sub>1</sub> =R <sub>3</sub> =R <sub>4</sub> =H                | <b>231</b> R <sub>1</sub> =Cl, R=R <sub>2</sub> =R <sub>3</sub> =R <sub>4</sub> =H                                  |
| <b>221</b> R <sub>2</sub> =C <sub>2</sub> H <sub>5</sub> , R=R <sub>1</sub> =R <sub>3</sub> =R <sub>4</sub> =H  | <b>232</b> R <sub>1</sub> =F, R=R <sub>2</sub> =R <sub>3</sub> =R <sub>4</sub> =H                                   |
| <b>222</b> R <sub>2</sub> =OCH <sub>3</sub> , R=R <sub>1</sub> =R <sub>3</sub> =R <sub>4</sub> =H               | <b>233</b> R <sub>1</sub> =Br, R=R <sub>2</sub> =R <sub>3</sub> =R <sub>4</sub> =H                                  |
| <b>223</b> R <sub>2</sub> =OC <sub>2</sub> H <sub>5</sub> , R=R <sub>1</sub> =R <sub>3</sub> =R <sub>4</sub> =H | <b>234</b> R <sub>1</sub> =R <sub>3</sub> =OCH <sub>3</sub> , R=R <sub>2</sub> =R <sub>4</sub> =H                   |
| <b>224</b> R <sub>2</sub> =Cl, R=R <sub>1</sub> =R <sub>3</sub> =R <sub>4</sub> =H                              | <b>235</b> R <sub>1</sub> =R <sub>2</sub> =OCH <sub>3</sub> , R=R <sub>3</sub> =R <sub>4</sub> =H                   |
| <b>225</b> R <sub>2</sub> =F, R=R <sub>1</sub> =R <sub>3</sub> =R <sub>4</sub> =H                               | <b>236</b> R <sub>1</sub> =R <sub>2</sub> =Cl, R=R <sub>3</sub> =R <sub>4</sub> =H                                  |
| <b>226</b> R <sub>2</sub> =Br, R=R <sub>1</sub> =R <sub>3</sub> =R <sub>4</sub> =H                              | <b>237</b> R <sub>1</sub> =R <sub>2</sub> =CH <sub>3</sub> , R=R <sub>3</sub> =R <sub>4</sub> =H                    |
| <b>227</b> R <sub>1</sub> =CH <sub>3</sub> , R=R <sub>2</sub> =R <sub>3</sub> =R <sub>4</sub> =H                | <b>238</b> R <sub>1</sub> -R <sub>2</sub> =OCH <sub>2</sub> O, R=R <sub>3</sub> =R <sub>4</sub> =H                  |
| <b>228</b> R <sub>1</sub> =C <sub>2</sub> H <sub>5</sub> , R=R <sub>2</sub> =R <sub>3</sub> =R <sub>4</sub> =H  | <b>239</b> R <sub>2</sub> =OCH <sub>3</sub> , R <sub>4</sub> =CH <sub>3</sub> , R=R <sub>1</sub> =R <sub>3</sub> =H |
| <b>229</b> R <sub>1</sub> =OCH <sub>3</sub> , R=R <sub>2</sub> =R <sub>3</sub> =R <sub>4</sub> =H               | <b>240</b> R <sub>1</sub> =OCH <sub>3</sub> , R <sub>4</sub> =CH <sub>3</sub> , R=R <sub>2</sub> =R <sub>3</sub> =H |

在此僅以化合物 227 的圖譜為例說明之:

化合物 227 的熔點為 158-160, 其質譜(MS)之分子離子峰  $m/z$   $M^+$  為 305.3; 其 IR 光譜分別於 3442.1, 為  $C_3=N-NH$  的吸收;  $1643.9\text{ cm}^{-1}$  顯示 1 個 carbonyl group 為  $C_4=O$  的吸收。另由  $^1H$ -NMR(DMSO- $d_6$ ) 光譜顯示: 6.63 (1H, t,  $J=7.2\text{ Hz}$ , H-4'), 6.88 (2H, d,  $J=7.6\text{ Hz}$ , H-2', H-6'), 7.16 (2H, dd,  $J=7.8\text{ Hz}$ , H-3', H-5'), 分別為(H-4'), (H-2', H-6'), (H-3', H-5')之信號; 5.27 (2H, s) 為 furan methylene 之信號; 7.36 (1H, d,  $J=8.2\text{ Hz}$ , H-8), 7.49 (1H, dd,  $J=8.2, 2.0\text{ Hz}$ , H-7), 7.96 (1H, d,  $J=1.2\text{ Hz}$ , H-5) 分別為 H-8, H-7 及 H-5 之信號; 12.10 (1H, s) 為  $C_3=N-NH$  之信號。而  $^{13}C$ -NMR 光譜顯示: 190.99 業已消失。綜合以上光譜數據分析, 化合物

6-Methyl-4-oxo-2,3,4,9-tetrahydrofuro[2,3-*b*]-quinolin-3-one  
phenylhydrazone (**227**) 為預期之結構無誤。