

### Efficient Synthesis of Dibenzo-14-crown-4 and Dibenzo-18-crown-6 by Microwave irradiation

Torreios Rey Eliseo, 정옥진\*, 박명준, 이성풍, 서정길,  
Grace Nisola, Arnel Beltran, Basavaraj R. Patil  
명지대학교  
(wjc0828@gmail.com\*)

Dibenzo-14-crown-4 and dibenzo-18-crown-6 ethers were efficiently synthesized by microwave (MW) irradiation in dimethyl sulfoxide solvent. The MW reactions afforded 60% and 77% yields of dibenzo-14-crown-4 and dibenzo-18-crown-6 respectively. MW irradiation was completed in just 5 mins, 600 times faster than the conventional reactions under reflux. <sup>1</sup>HNMR, FTIR and melting points were comparable with the literature values after purification by recrystallization. The temperature profile of the technique showed increase in temperature in less than 30 secs highlighting the MW effects. Yield increase was depended on the templating effect of the metal catalyst (Li<sup>+</sup>, Na<sup>+</sup>, K<sup>+</sup>) according to the size-match selectivity theory. Synthesis at varied reactant molar ratios revealed that ring closures can be achieved at low molar ratios. This work was supported by the National Research Foundation of Korea (NRF) grant funded by the Korea government (MEST) (No. 2012R1A2A1A01009683 and 2012-0006693).