

## らせん型キノン誘導体の転位反応によって得られるスピロラクトン誘導体の合成とその配座異性体

(宇都宮大院工) ○高橋拓真・上見 怜・阿久津裕生・刈込道德

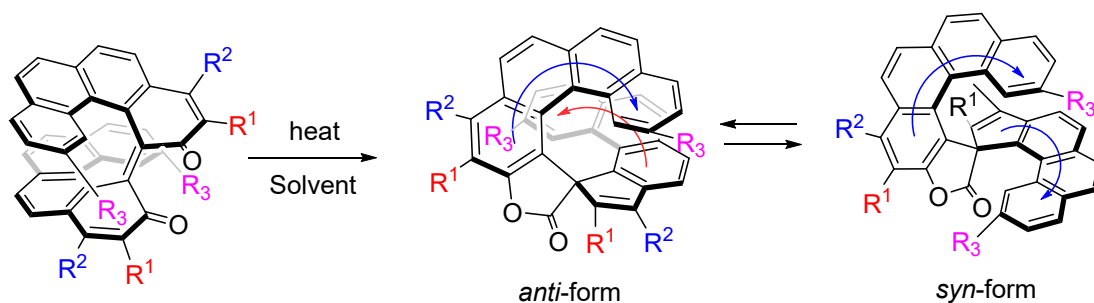
Synthesis of spiro-lactone derivatives obtained through the rearrangement reaction of helical quinone derivatives and a study of their conformational isomers (*Graduate School of Engineering, Utsunomiya University*)

○Takuma Takahashi, Satoshi Joken, Yusei Akutsu, Michinori Karikomi

A helical quinone derivative, obtained via the oxidative coupling reaction of 2-hydroxybenzo[c]phenanthrene (**1**),<sup>1</sup> was heated to induce a rearrangement reaction, forming a spiro-lactone derivative.<sup>2</sup> In this product, an equilibrium exists in solution between two conformational isomers, *syn* (**3**) and *anti* (**2**), which correspond to the same and opposite orientations of the fused benzene moiety,<sup>2</sup> respectively. To further investigate this equilibrium, we synthesized several derivatives with substituents introduced into the benzene ring moiety and examined the effects of factors such as solvent and temperature on their equilibrium behavior.

**Keywords :** *Spiro; Bisphenol; Cyclization; Quinone; Optical resolution*

2-ヒドロキシベンゾ[c]フェナントレンの酸化的カップリング反応で得られるらせん型キノン誘導体(**1**)<sup>1</sup>を加熱すると転位反応が進行し、スピロラクトン誘導体が生成した<sup>2</sup>。この生成物は溶液中では縮環ベンゼン部位の配向が同一方向を向く *syn*-体 (**3**)と異なる方向を向く *anti*-体 (**2**)の二つの配座異性体の平衡が存在する。そこでベンゼン環部位に置換基を導入した幾つかの誘導体を合成し、これらの平衡が溶媒、温度などの条件による影響を明らかにした。



- 1) Synthesis of Helical Quinone Derivatives by Oxidative Coupling of Substituted 2-Hydroxybenzo[c]phenanthrenes. M. Shahabuddin, A. Akutsu, T. Kimura, M. Karikomi, *SYNTHESIS* **2017**, 49, 1547.
- 2) Synthesis of poly condensed oxygen-containing helical heterocycles via rearrangement of benzofused-2,2'-diphenylquinone derivatives, M. S. Hossain, S. Inoue, M. Shahabuddin, T. Kimura, M. Karikomi *Tetrahedron Lett.* **2019**, 60, 1682.