Syntheses, Spectroscopy and Crystal Structures of (R)-N-(1-Aryl-ethyl)salicylaldimines and [Rh{(R)-N-(1-aryl-ethyl)salicylaldiminato}(η⁴-cod)] Complexes

Mohammed Enamullah⁵, A. K. M. Royhan Uddin⁵, Anne-Christine Chamayou⁶, and Christoph Janiak⁶

⁵ Department of Chemistry, Jahangirnagar University, Dhaka-1342, Bangladesh
⁶ Institut für Anorganische und Analytische Chemie, Universität Freiburg, Albertstr. 21, D-79104 Freiburg, Germany

Reprint requests to Prof. M. Enamullah. Fax: +8802-7708069. E-mail: menam@juniv.edu/enamullahju@yahoo.com or to Prof. C. Janiak. Fax: +49-7612036147. E-mail: janiak@uni-freiburg.de


Condensation of salicylaldehyde with enantiopure (R)-(1-aryl-ethyl)amines yields the enantiopure Schiff bases (R)-N-(1-aryl-ethyl)salicylaldimine (HSB⁺; aryl = phenyl, 2-methoxyphenyl, 3-methoxyphenyl, 4-methoxyphenyl (4), 4-bromophenyl (5), 2-naphthyl). These Schiff bases readily react with dinuclear (acetato)(η⁴-cycloocta-1,5-diene)rhodium(I), [Rh(μ-O₂CMe)(η⁴-cod)]₂, to afford the mononuclear complexes, cyclooctadiene-(R)-N-(1-aryl-ethyl)salicylaldiminato-κ²N,O-rhodium(I), [Rh(SB⁺)(η⁴-cod)] (SB⁺ = deprotonated chiral Schiff base = salicylaldiminate; aryl = phenyl (7), 2-methoxyphenyl, 4-methoxyphenyl, 4-bromophenyl, 2-naphthyl). The complexes have been characterized by IR, UV/vis, ¹H/¹³C NMR and mass spectrometry, optical rotation as well as by single-crystal X-ray structure determination for 4, 5 and 7. The structure of 5 shows C–Br···π contacts. Compound 7 is only the second example of a Rh(η⁴-cod) complex with a six-membered Rh-N,O-chelate ring.

Key words: (R)-Schiff Bases, Rh(η⁴-cod) Complexes, Chelate Complexes, π Interactions, Optical Activity, Chirality