Electronic supplementary information

Liquid crystals based on silver carbene complexes derived from dimeric bis (imidazolium) bromide salts

Amalia Pană[a], Monica Iliş[a], Marin Micutz[b], Florea Dumitraşcu[c], Iuliana Pasuk[d], Viorel Cîrcu[a]

[a]*Dept. of Inorganic Chemistry, University of Bucharest, 23 Dumbrava Rosie st, sector 2, Bucharest 020464, Romania, e-mail: viorel_carcu@yahoo.com, viorel.circu@g.unibuc.ro*

[b]*Dept. of Physical Chemistry, University of Bucharest, 4-12 Elisabeta Blvd., Bucharest 030018, Romania*

[c]*Centre for Organic Chemistry "C. D. Nenitzescu", Romanian Academy, Spl. Independentei 202B, Bucharest 060023, Romania*

[d]*National Institute of Materials Physics, P.O. Box MG-7, Magurele, 077125, Romania*

Content:

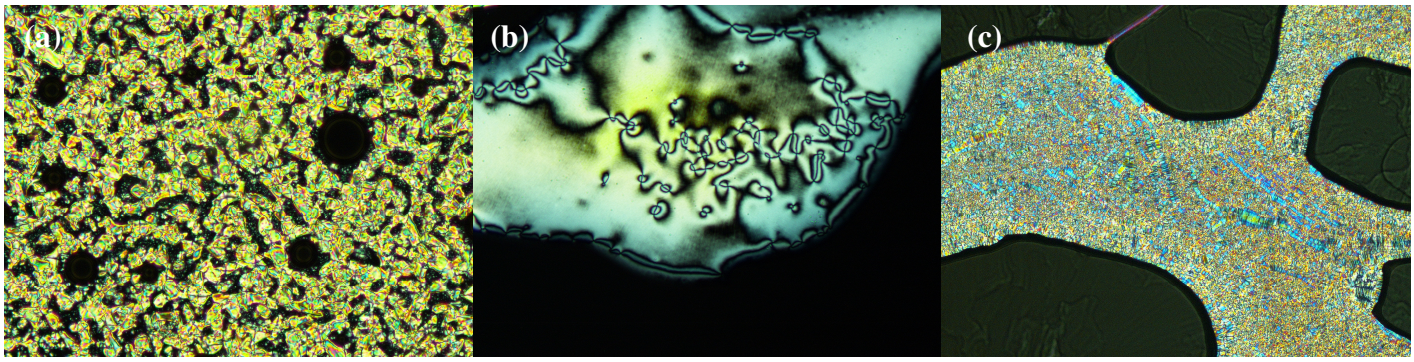

Fig. 1 Optical texture for **2a** at 51°C (a), for **2b** at 77°C (b) and for **2c** at 92°C (c).

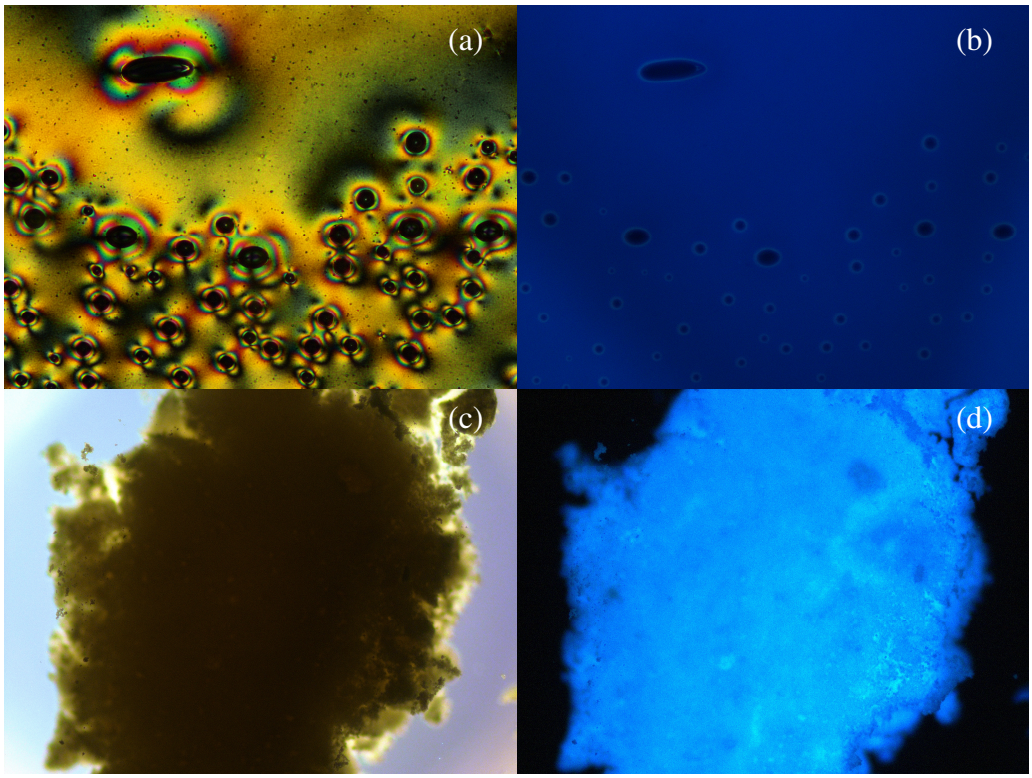

Fig. 2 Optical texture for **3a** at 50°C in SmA phase (a); the same region when irradiated in the 280-320 nm range (b); picture of **3a** in solid state at 25°C (c); picture of **3a** in solid state at 25°C irradiated in the 280-320 nm range (d).

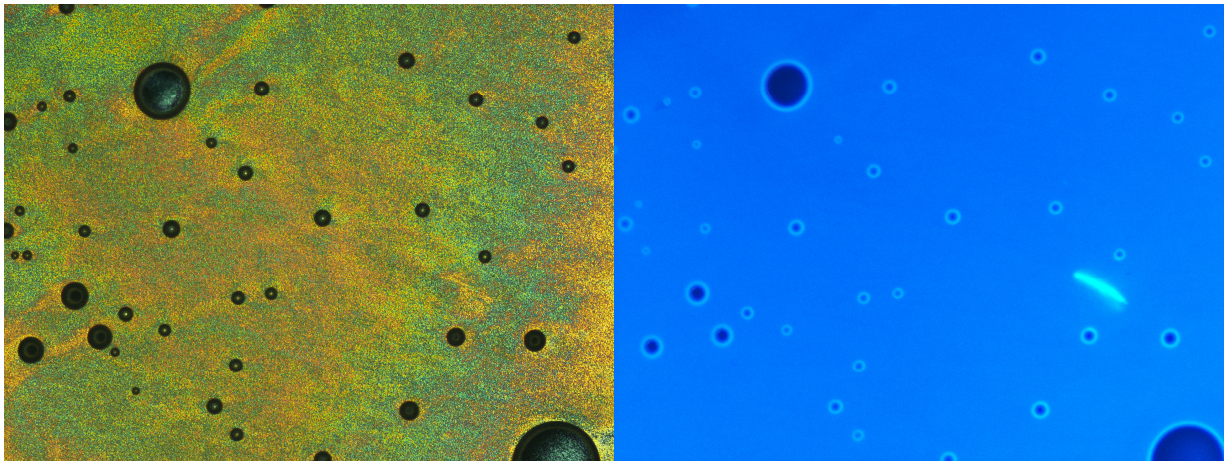

Fig. 3 Optical texture for **3b** at 45°C (left); the same region when irradiated in the 280-320 nm range (right)

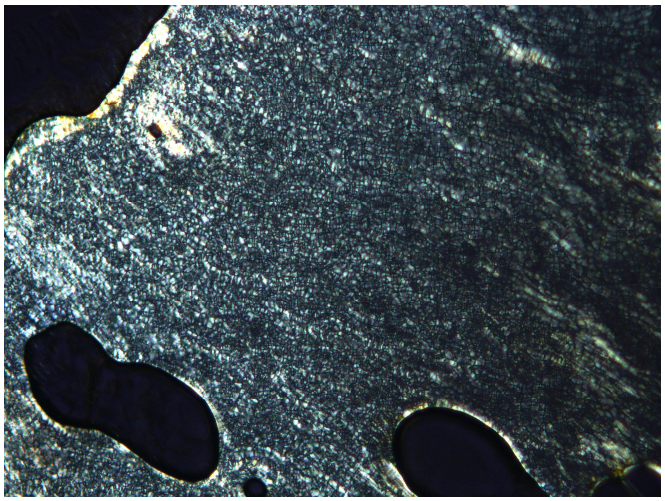

Fig. 4 Optical texture for **3c** at 129°C.

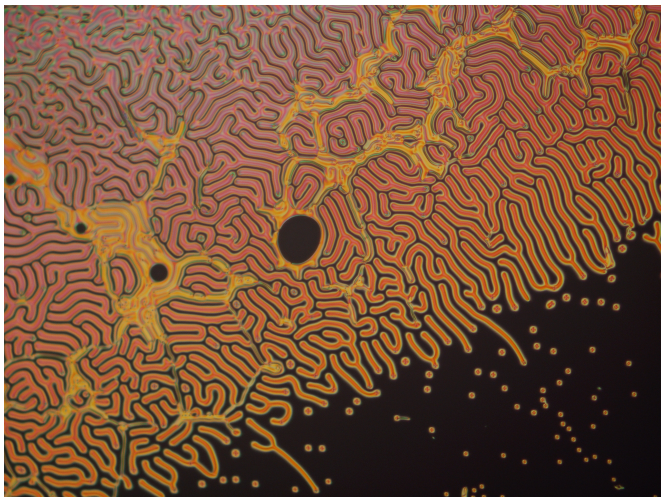

Fig. 5 Fingerprint texture of a mixture of **3c** in 5CB (1%) recorded at 29°C.

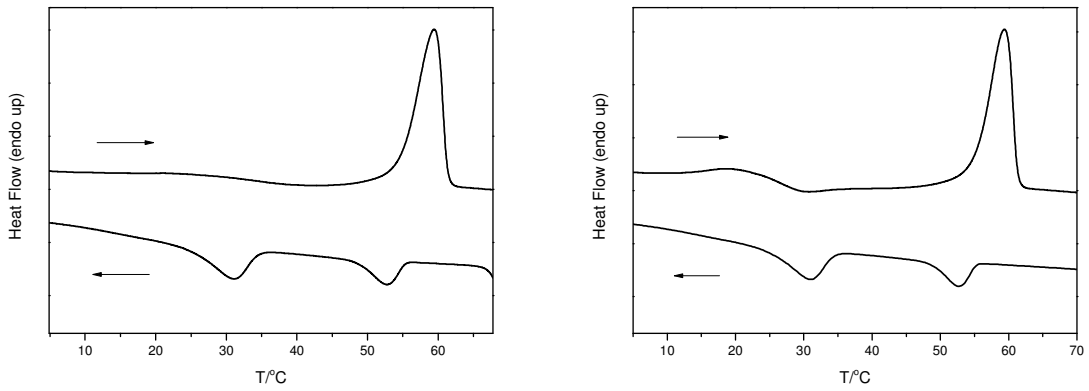

Fig. 6 DSC traces of **2a**, first heating – cooling cycle (left) and second heating-cooling cycle (right).

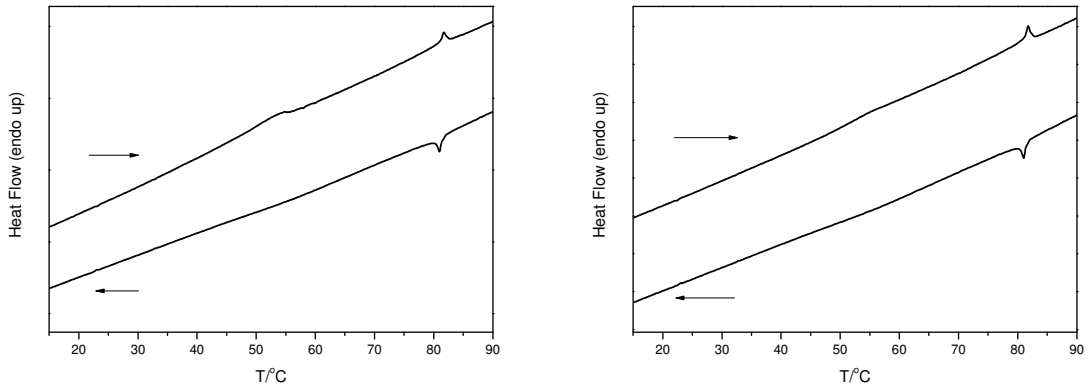

Fig. 7 DSC traces of **2b**, first heating-cooling cycle (left) and second heating-cooling cycle (right).

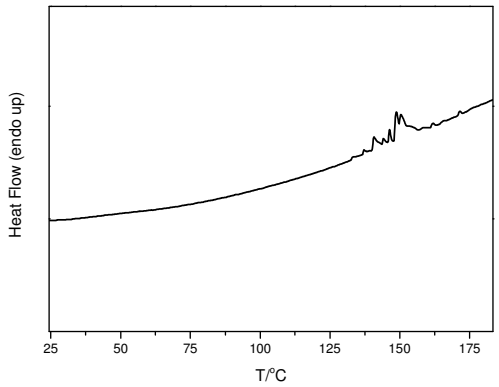

Fig. 8 DSC trace for **2c** (first heating run).

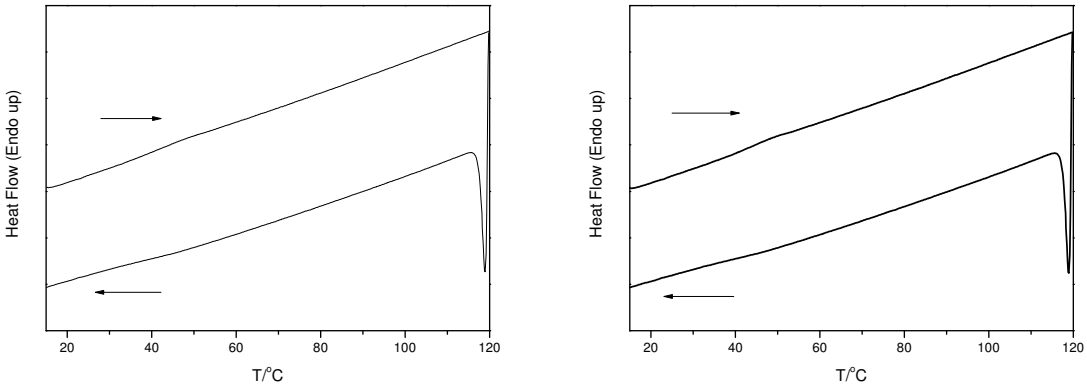

Fig. 9 DSC trace for **2c**, first (left) and second (right) heating cooling cycle up to 120°C.

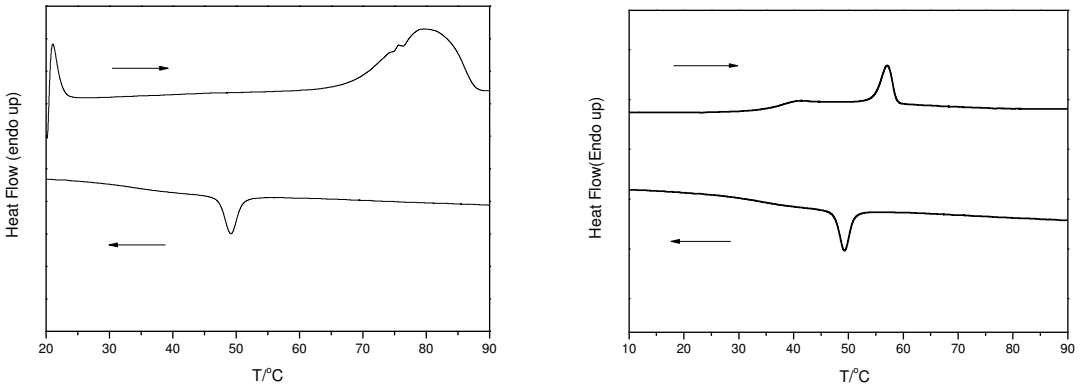

Fig. 10 DSC traces of **3a**, first heating-cooling cycle (left) and second heating-cooling cycle (right)

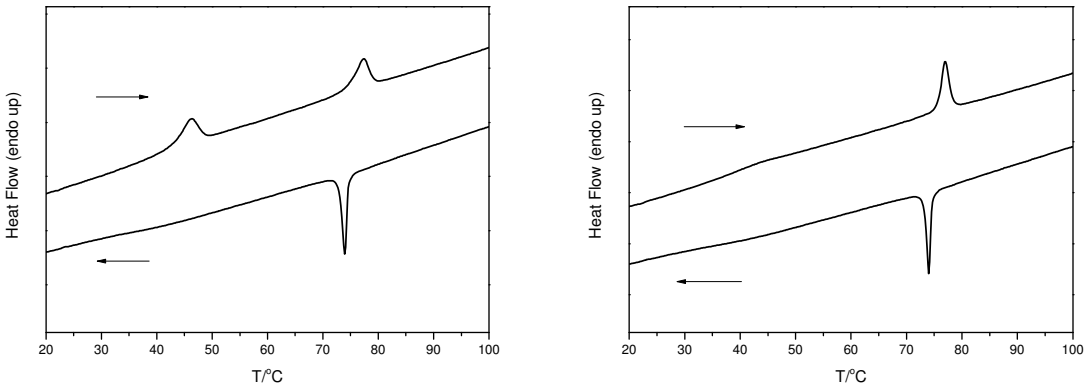

Fig. 11 DSC traces of **3b,** first heating-cooling cycle (left) and second heating-cooling cycle (right).

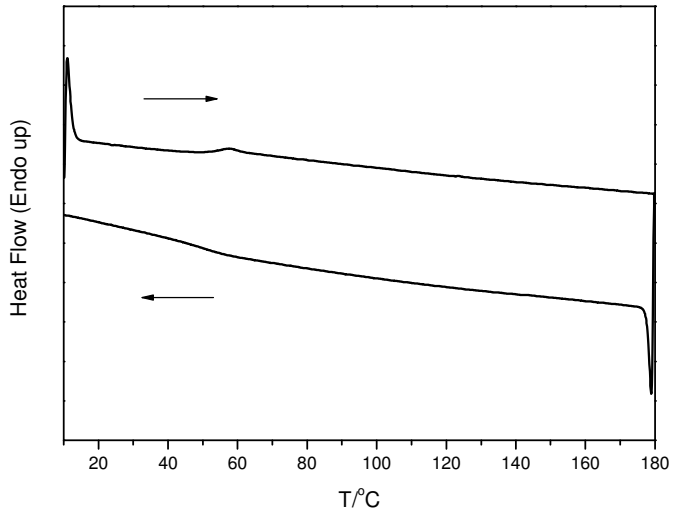

Fig. 12 DSC traces for **3c** (second heating cooling cycle in the 10 – 180°C range)

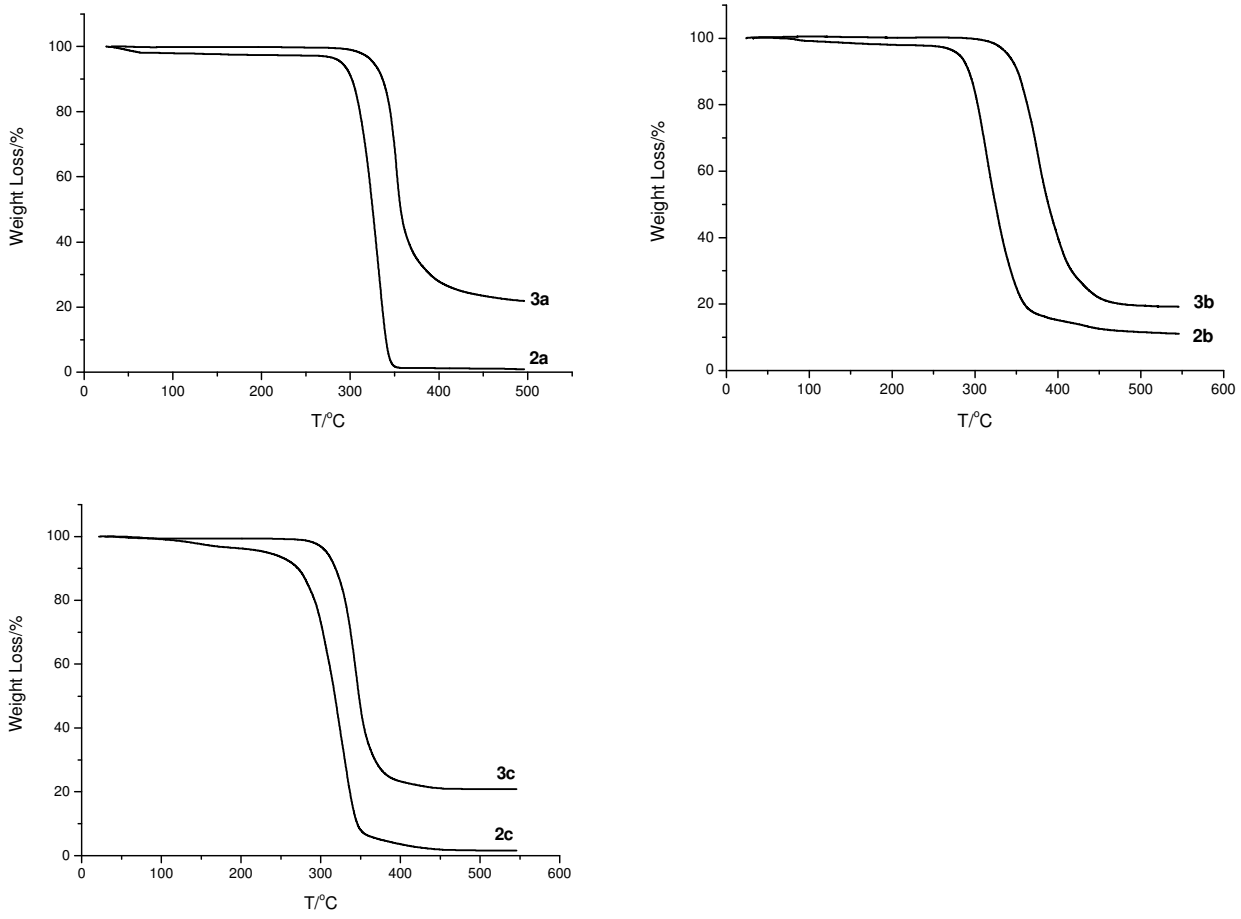

Fig. 13 The TG curves for bis(imidazolium) salts **2a-c** and their silver carbene complexes **3a-c**.

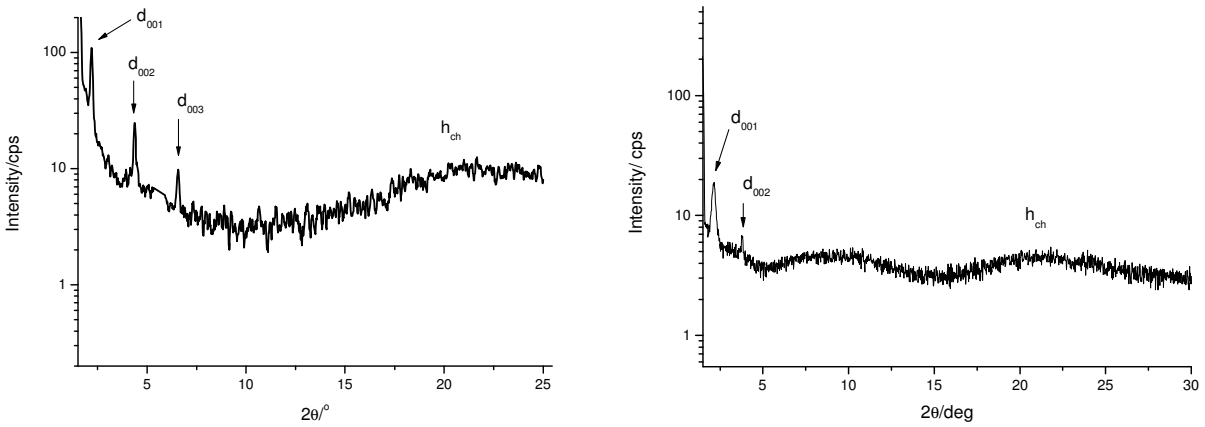

Fig. 14 X-ray powder diffraction pattern for **2a** recorded at 44°C on cooling from isotropic liquid (left) and for **3a** recorded at 50°C on cooling from isotropic liquid (right).

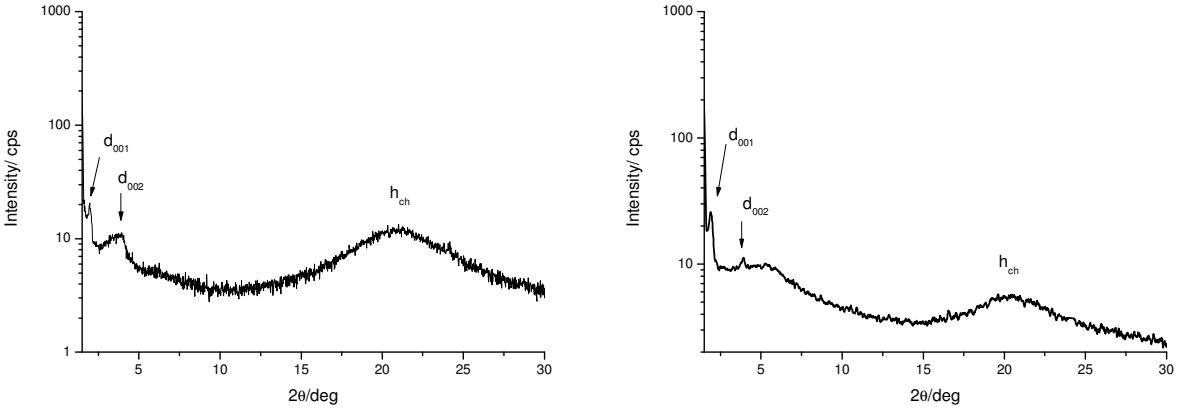

Fig. 15 X-ray powder diffraction pattern for **2b** recorded at 65°C on cooling from isotropic liquid (left) and for **3b** recorded at 60°C on cooling from isotropic liquid (right).

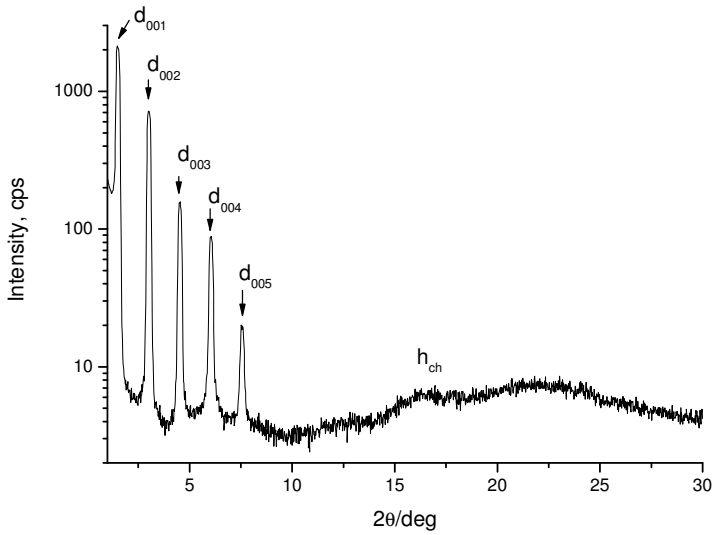

Fig. 16 X-ray powder diffraction pattern for **2c** recorded at 81°C on heating from glassy state.

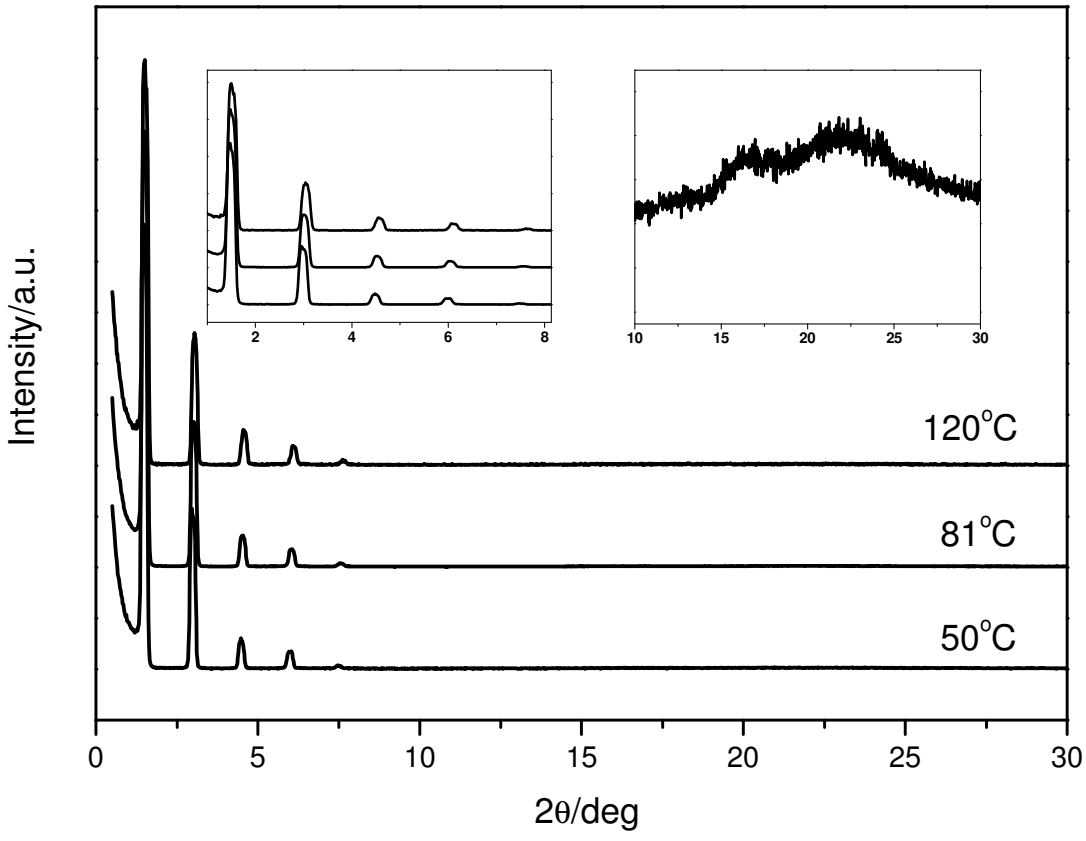

Fig. 17. Powder X-ray diffraction pattern for **2c** at different temperatures.

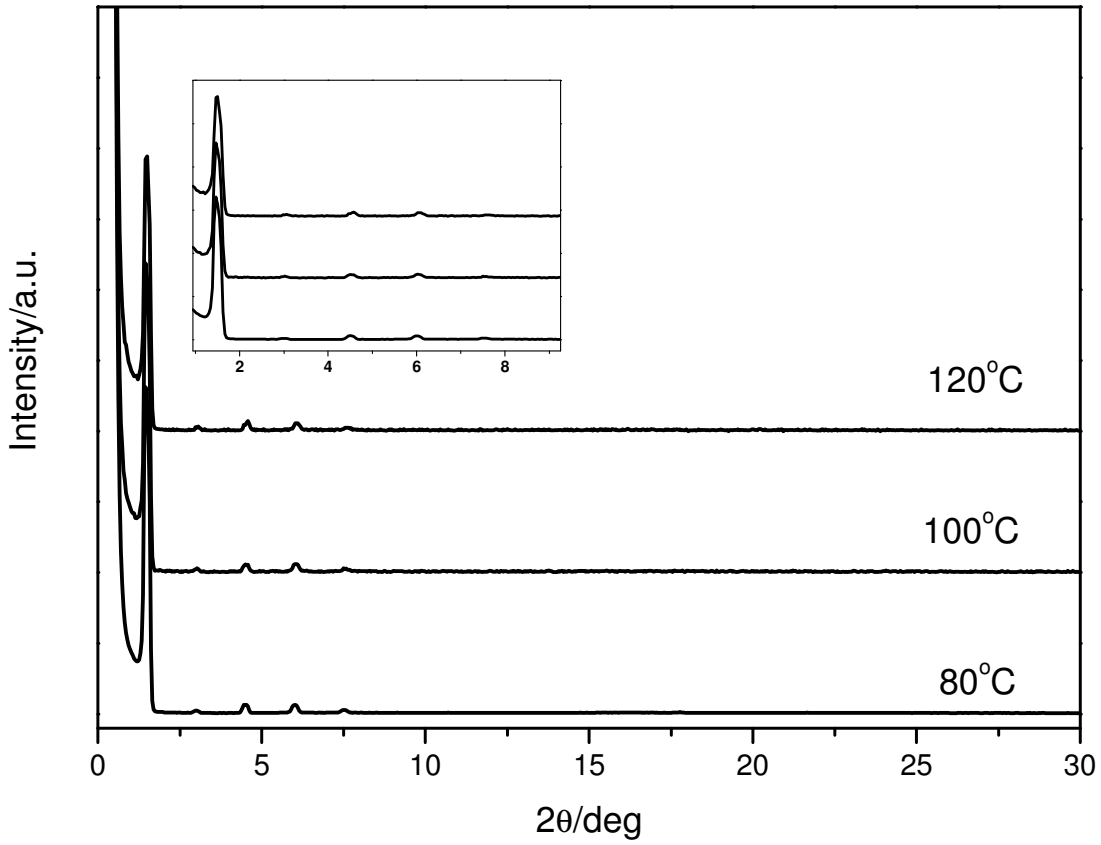

Fig. 18. Powder X-ray diffraction pattern for **3c** at different temperatures.

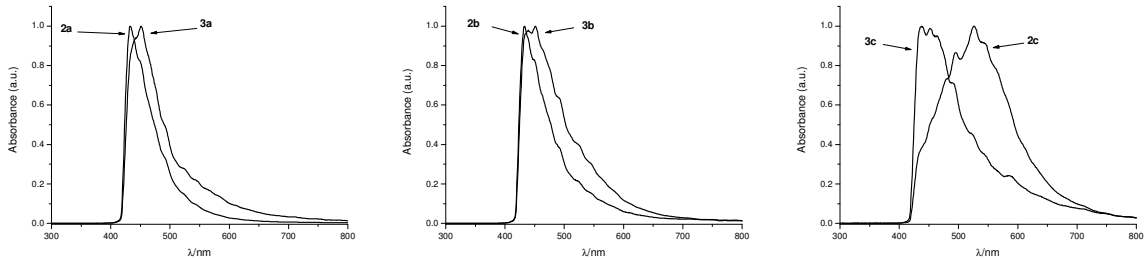

Fig. 19 The solid state emission spectra (recorded as 10% w/w in PMMA films) of bis(imidazolium) salts **2a-c** and their silver carbene complexes **3a-c**.