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16th - 20th June • Burgos • Spain

*Acta of the International Simposia on Metal Complex



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Begoña García, Editor

Facultad de Ciencias, Universidad de Burgos, Spain
President of the Scientific Committee of ISMEC2013

Guido Crisponi, Editor

University of Cagliari, Italy
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Editors:

Begoña García (*President of the Scientific Committee of ISMEC 2013*)

Departamento de Química
Facultad de Ciencias
Universidad de Burgos
Plaza de Missael Bañuelos s/n
09001 Burgos (Spain)
begar@ubu.es

Guido Crisponi (*President of the ISMEC Group*)

Dipartimento di Scienze Chimiche
Università degli Studi di Cagliari
Cittadella Universitaria
09042 Monserrato – Cagliari, ITALY
crisponi@unica.it

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Comparison of selectivity of a family of chelating agents for trivalent (Al^{3+} , Fe^{3+}) and bivalent (Cu^{2+} , Zn^{2+}) metal ions.

Leonardo TOSO,^{a)} Guido CRISPONI,^{a)} Maria Amelia SANTOS,^{b)} Sergio M. MARQUES,^{b)} Valeria M. NURCHI,^{a)} Joanna I. LACHOWICZ,^{a)} Miriam CRESPO-ALONSO,^{a)} Maria Antonietta ZORODDU,^{c)} Massimiliano PEANA^{c)}

^{a)} Department of Chemical and Geological Sciences, University of Cagliari, Cittadella Universitaria, 09042 Monserrato, Cagliari, Italy; L.toso@unica.it

^{b)} Centro Quimica Estrutural, Instituto Superior Tecnico, Universidade Técnica de Lisboa, Av. Rovisco Pais, 1049-001 Lisboa, Portugal

^{c)} Department of Chemistry and Pharmacy, University of Sassari, Via Vienna 2, 07100 Sassari, Italy

Chelation therapy is used for the treatment of metal intoxication in humans [1]. Selectivity towards the target metal ion is one important characteristic of the chelating agent. In the frame of our research of chelating agents for iron and aluminium, we synthesized five new ligands (**Figure 1**), and studied their behavior toward the trivalent metal ions. L4, L5, L6 and L8 were found to be excellent ligands for the coordination of Fe^{3+} and Al^{3+} [2-3].

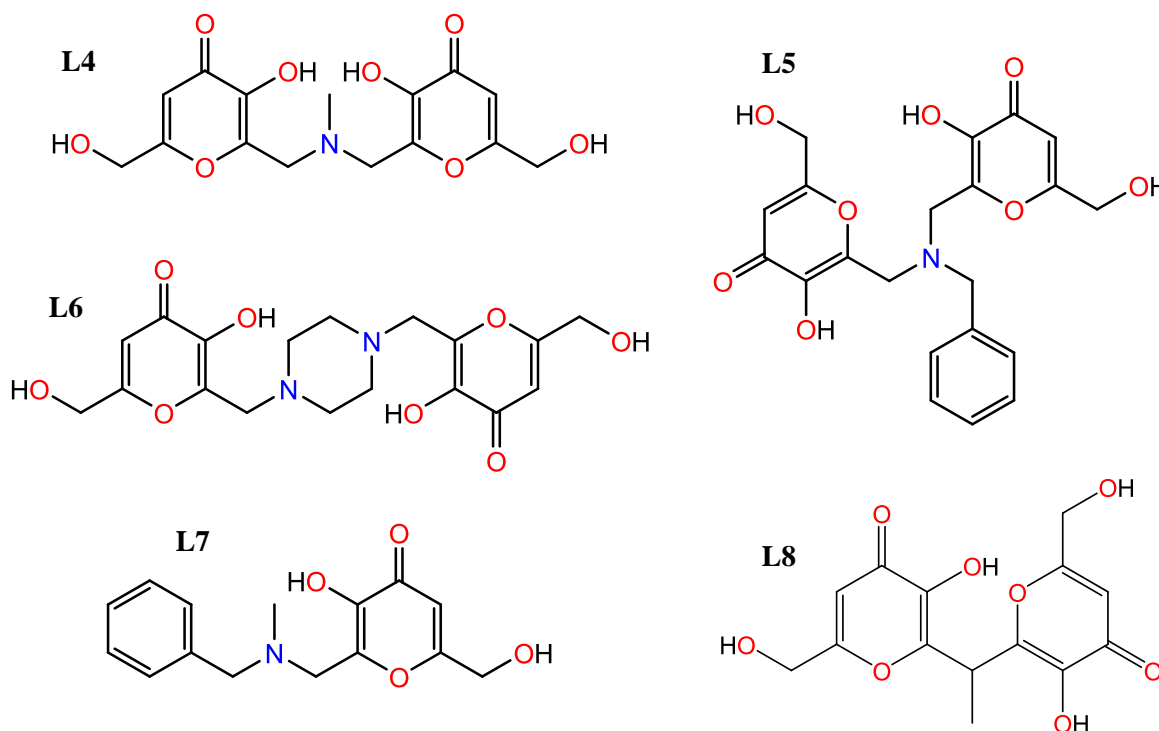


Fig.1 Hydroxypyronone ligands L4, L5, L6, L7, L8.

We are presenting here a study on the same ligands with the two essential bivalent metal ions, Zn²⁺ and Cu²⁺. The results of spectrophotometric, potentiometric, and NMR measurements performed to determine the equilibrium formation constants will be presented. The speciation of the complexes with the trivalent metal ions in presence of endogenous zinc and copper will be discussed.

References:

- [1] Crisponi G.; Nurchi V. M.; Crespo Alonso M.; Toso L. Chelating agents for metal intoxication. *Current Medicinal Chemistry* **2012**, 19(17), 2794-2815
- [2] Toso L.; Crisponi G.; Nurchi V.M.; Crespo-Alonso M.; Lachowicz J.I.; Santos M.A.; Marques S.M.; Niclos-Gutierrez J.; Gonzalez-Perez J.M.; Dominguez-Martin A.; Choquesillo-Lazarte D.; Szewczuk Z. A family of hydroxypyronone ligands designed and synthesized as iron chelators. *J. Inorganic Biochemistry*, **2013** accepted for publication
- [3] Toso L.; Crisponi G.; Nurchi V.M.; Crespo-Alonso M.; Lachowicz J.I.; Arca M.; Santos M.A.; Marques S.M.; Niclos-Gutierrez J.; Gonzalez-Perez J.M.; Dominguez-Martin A.; Choquesillo-Lazarte D.; Szewczuk Z. Searching for new aluminium chelating agents: a family of hydroxypyronone ligands. *J. Inorganic Biochemistry*, **2013** submitted