Dear Dr. John Volkman,

Editor-in-Chief, Organic Geochemistry

Please find enclosed the manuscript “Early diagenetic alterations of sterols biomarkers during particle settling and burial in polluted and pristine areas of the Rio de la Plata basin” by E. D. Speranza, M. Colombo, C.N. Skorupka and J. C. Colombo which we respectfully submit to be considered for publication in Organic Geochemistry.

The aim of this work is to evaluate the sources, vertical fluxes and diagenetic alterations of sterol markers in two contrasting sites of the Rio de la Plata basin: the highly impacted metropolitan area of Buenos Aires and a relatively non-polluted northern site in the Uruguay River. We analysed sterols in settling material and sediments over a 7-year period; vertical fluxes, sediment inventories and sterol preservation was evaluated for each individual compound. Sterol profiles and ratios also allowed discriminating sources of organic matter in the river (sewage vs. land plant inputs), highlighting the massive amount of fecal sterols close to Buenos Aires sewage outfall (among the highest values reported in literature). In addition, the study of temporal variability highlighted the importance of terrestrial runoff on sterol signal in a highly turbid freshwater environment.

Finally, I would like to indicate that all the authors have fully participated in this manuscript and accept responsibility for it and that this paper is not being considered for publication elsewhere.

Sincerely yours,

Dr. Eric D. Speranza

([esperanza@fcnym.unlp.edu.ar](mailto:esperanza@fcnym.unlp.edu.ar))

Laboratorio de Química Ambiental y Biogeoquímica, FCNyM, UNLP

Av. Calchaquí 6200, Florencio Varela (1888), Buenos Aires, Argentina

(Corresponding author)

Lic. Manuel Colombo

Lic. Carlos N. Skorupka

Dr. Juan C. Colombo