Reply to the 'Comment on "Phenylureas. Part 1. Mechanism of the basic hydrolysis of phenylureas and Part 2. Mechanism of the acid hydrolysis of phenylureas"' by S. Salvestrini, P. Di Cerbo and S. Capasso, *J. Chem. Soc., Perkin Trans. 2*, 2002, 848[1,2]

PERKIN 2

Robert Laudien *† and Rolf Mitzner

Institute of Physical and Theoretical Chemistry, University of Potsdam, Am Neuen Palais 10, 14469 Potsdam, Germany

Received (in Cambridge, UK) 4th February 2002, Accepted 5th February 2002
First published as an Advance Article on the web 14th March 2002

We accept the points made in the preceding Comment.[3] However, we don't necessarily see that they contradict our proposed mechanisms for the basic and acid hydrolysis of phenylureas. Our proposed mechanisms are mainly based on the pH–rate profiles taken in the range 0.005 to 0.9 mol l^{-1} NaOH and 0.001 to 0.9 mol l^{-1} H_2SO_4, respectively, and can also be explained by the substituent influence on the hydrolysis rate determined and the measured deuterium solvent isotope effects. The similarity of the results for the rate constants of hydrolytic decomposition of phenylureas in 0.1 M NaOH and 0.1 M H_2SO_4, respectively, may be due to a similar reaction mechanism of phenylureas both in the basic and in the acid medium of the respective concentration according to an addition–elimination mechanism.

However, we are aware of the fact that further detailed kinetic investigations on phenylureas will shed more light on the exact mechanism of the hydrolytic reaction course. In particular, extended kinetic investigations in buffered solutions of lower basicity and acidity (<0.005 mol l^{-1}) and in the very high basicity range (>1 mol l^{-1}) which were outside the scope of our examination seem to be necessary to be certain about the hydrolytic decomposition mechanism of phenylureas in the low and high pH range. Such measurements should also clarify whether the kinetic data in 0.1 mol l^{-1} NaOH and 0.1 mol l^{-1} H_2SO_4 are in fact similar by pure coincidence or not.

References

1 R. Laudien and R. Mitzner, *J. Chem. Soc., Perkin Trans. 2*, 2001, 2226.
2 R. Laudien and R. Mitzner, *J. Chem. Soc., Perkin Trans. 2*, 2001, 2230.
3 S. Salvestrini, P. Di Cerbo and S. Capasso, *J. Chem. Soc., Perkin Trans. 2*, 2002, 848.

---

† *Present address*: Research Institute of Electronics, Shizuoka University, 3-5-1 Johoku, Hamamatsu 432-8011, Japan. E-mail: rlrober@ipc.shizuoka.ac.jp

DOI: 10.1039/b201281m