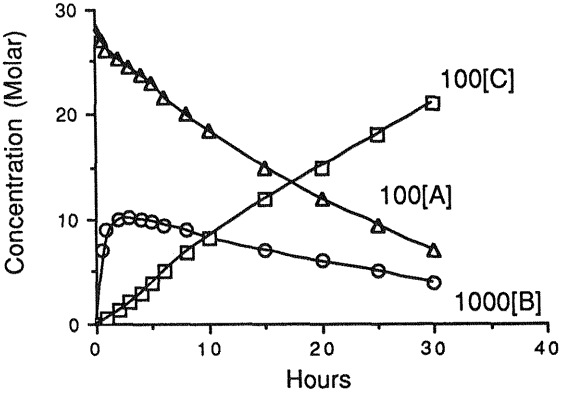

Fig. 5 The A → B part of cefatoxime photolysis. C_{total} has been obtained as 100-[A]-[B], but this does not account for the possibility of other reactions of C. (Graph constructed from data by Lerner et al., 1988.)

however, also to check the toxicity at intermediate points, because C might be toxic, but degrade into nontoxic products, and the toxicity of a partly degraded sample might be worse than that of a fully degraded sample).

The A → B → C reaction is rather common; for instance, it has been reported by Misra et al. (1993).

There continues to be, in present literature, reports of this type of reaction; for instance, Archontaki et al. (1998) reported on the decomposition of nordazepam and showed typical A–B–C plots with the A degradation being first order, the B profile having a maximum, and the C profile having the typical upswing. Burke et al. (1997) reported on the decomposition of theo-m-GLA and found it to be biexponential.

Buur and Bundgaard (1984) and Beal et al. (1993, 1997) reported that the hydrolyses of 3-acetyl- and 3-propionyl-5-FU were biexponential and found that an initial equilibrium of 3-acyl-5FU with O^2-acyl-5FU, which then hydrolyzed to 5-FU, explained this.

4.2. Parallel Reactions

If A can decompose into two species, B and C, then the reactions may be represented by:

$$A \rightarrow B \qquad \text{(rate constant } k_1\text{)} \tag{2.20}$$

and

$$A \rightarrow C \qquad \text{(rate constant } k_2\text{)} \tag{2.21}$$

The rate equation is

$$\frac{dA}{dt} = -k_1[A] - k_2[A] = -(k_1 + k_2)[A] \tag{2.22}$$