



163–164° (found: C, 78·8; H, 5·6; N, 7·0.  $C_{13}H_{11}NO$  requires C, 79·1; H, 5·6; N, 7·1%). 2',6'-Dimethylbenzanilide was recrystallized from ethyl acetate-ligroin as white needles m.p. 138·5° (found: C, 79·9; H, 6·4; N, 6·2.  $C_{15}H_{15}NO$  requires C, 80·0; H, 6·7; N, 6·2%). The ability of the compounds to form methaemoglobin in cats was determined by the method described by McLean & others (1967). The results obtained, together with the results which had previously been obtained for acetanilide and aniline are given in Table 1.

TABLE 1. METHAEMOGLOBIN (% TOTAL HAEM PIGMENTS) FORMED IN CATS AFTER ADMINISTRATION OF ANILINE AND SOME ANILIDES

Compound	Dose	No. of cats	Mean % Met-Hb formed						Mean % Met-Hb formed over total time
			Time after admin. of compound (hr)						
			1	2	3	4	5	6	
Acetanilide ..	0·5 mmole/kg oral	5	38·0	66·9	73·5	78·1	76·6	78·5	68·6
Benzanilide ..	1 mmole/kg oral	5	17·8	41·4	43·1	33·4	27·1	20·5	30·6
2',6'-Dimethylbenzanilide ..	1 mmole/kg oral	2	1·8	1·2	1·2	0·5	2·3	0·7	1·1
Aniline ..	0·25 mmole/kg i.v.	5	70·6	70·0	66·6	64·4	55·6	—	65·4

It can be seen that aniline (0·25 mmole/kg i.v.) and acetanilide (0·5 mmole/kg, oral) formed approximately the same amount of methaemoglobin, while benzanilide (1 mmole/kg, oral) formed about half as much, and 2',6'-dimethylbenzanilide (1 mmole/kg, oral) formed virtually none. Since with all these compounds the methaemoglobin produced is related ultimately to the concentration of aniline present in body fluids, the conclusion to be drawn is that the slow rate of hydrolysis of 2',6'-dimethylbenzanilide *in vivo*, and to a lesser extent of benzanilide, is the overall rate determining step in the formation of methaemoglobin by these compounds. The conclusion from these results considered along with the results of McLean & others (1967) is that it is possible to modify the ability of an aromatic amide to form methaemoglobin by retarding hydrolysis of the amide group but this is only manifest when profound changes are made in the reactivity of the amide link.

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