Table 3. Effect of leaving group pK_a on k_{cat}, K_m, and k_{cat}/K_m of sweet potato, red kidney bean, and pig PAP

Substrate	pK_a	Sweet potato PAP*			Red kidney bean PAP†			Pig PAP‡		
Leaving group		$k_{cat,,}$ s^{-1}	K_m, mM	k_{cat}/K_m, $mM^{-1}•s^{-1}$	$k_{cat,,}$ s^{-1}	K_m, mM	k_{cat}/K_m, $mM^{-1}•s^{-1}$	$k_{cat,,}$ s^{-1}	K_m, mM	k_{cat}/K_m, $mM^{-1}•s^{-1}$
4-Nitrophenyl	7.14	2,100 ± 140	0.08 ± 0.01	25,000[b]	850 ± 30	2.20 ± 0.15	390	470 ± 40	1.25 ± 0.25	380[b]
3-Nitrophenyl	8.23	890 ± 40	0.70 ± 0.09	1,300	300 ± 19	1.10 ± 0.1	280	440 ± 20	1.40 ± 0.26	310
3-Chlorophenyl	9.08	890 ± 45	0.53± 0.07	1,700	100 ± 5	0.20 ± 0.04	490	340 ± 31	2.56 ± 0.60	130
α-Naphthyl	9.24	450 ± 30	0.09 ± 0.01	5,100	63 ± 6	0.80 ± 0.05	79	130 ± 15	3.60 ± 0.40	38
β-Naphthyl	9.24	1,800 ± 130	0.11± 0.01	17,000	48 ± 6	0.65 ± 0.10	75	230 ± 30	2.00 ± 0.40	110
Phenyl	9.99	1,980 ± 140	0.09 ± 0.01	21,000	85 ± 5	0.55 ± 0.05	86	230 ± 20	5.80 ± 0.70	39
Phosphotyrosine	10.04	1,700 ± 190	0.29 ± 0.05	5,900	24 ± 7	0.30 ± 0.10	87	280 ± 15	5.20 ± 0.40	52
Benzyl	14.75	3,200 ± 300	0.40 ± 0.05	8,100	–	–	<0.07[§]	4.20± 0.3	1.74 ± 0.50	2.44
β-Glyceryl[§]	15.44	3,700 ± 550	0.53 ± 0.11	6,900	–	–	<0.01[§]	-		<0.08[¶]

*$[E]_0$ = 1 nM.

†$[E]_0$ = 55 nM.

‡$[E]_0$ = 25 nM.

[§]These numbers were calculated by using the minimum detectable released phosphate in the assay, at an enzyme concentration of $[E]_0$ = 120 nM and maximum substrate concentration of 40 mM.

[¶]The value was calculated from the minimum amount of phosphate detectable in the assay, $[E]_0$ = 55 nM, and the maximum substrate concentration in the assay, 100 mM.