Supplement information for the paper No. c1gc15042a.

The synthesis vs hydrolysis of several dipeptides catalyzed by protease WQ9-2 and PT121

Table. 1. The synthesis vs hydrolysis of several dipeptides catalyzed by protease WQ9-2

	Synthesis rate in 50%DMSO (μmol/L/min)	Hydrolysis rate in 50%DMSO (μmol/L/min)	Synthesis rate in aqueous system (μmol/L/min)
Cbz-Phe-Phe-NH_2	2264.2	128.1	405.2
Cbz-Trp-Phe-NH_2	313.6	14.9	85.7
Cbz-Tyr-Phe-NH_2	445.1	39.5	234.3

Table. 2. The synthesis vs hydrolysis of several dipeptides catalyzed by protease PT121

	Synthesis rate in 50%DMSO (μmol/L/min)	Hydrolysis rate in 50%DMSO (μmol/L/min)	Synthesis rate in aqueous system (μmol/L/min)
Cbz-Phe-Phe-NH_2	394.7	92.7	38.5
Cbz-Trp-Phe-NH_2	128.9	78.1	103.4
Cbz-Tyr-Phe-NH_2	382.5	109	28.9

The effect of temperature and rotation speed on the yield of Boc-Tyr-Pro-Trp-Phe-NH_2 catalysed by protease PT121.

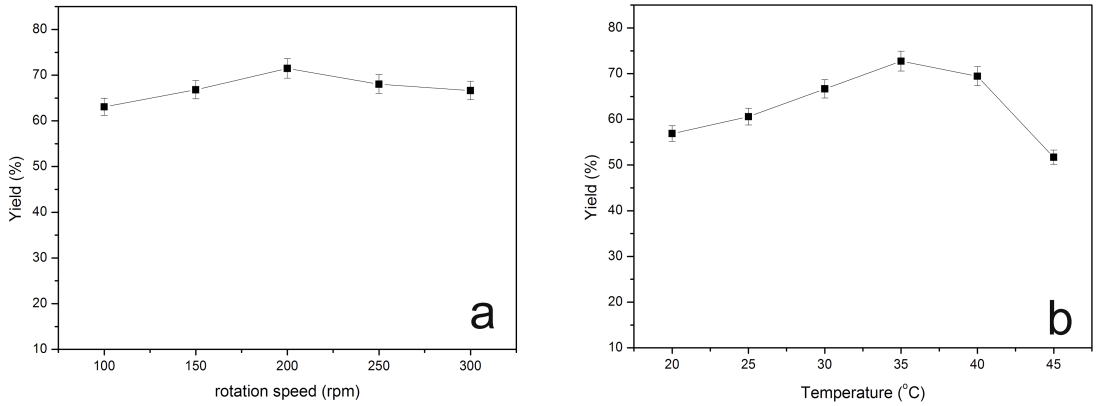

Fig. 1. Effect of reaction parameters on the yield of Boc-Tyr-Pro-Trp-Phe-NH_2 in the ethyl acetate-aqueous system. (a) Effect of rotation speed (20 mM Boc-Tyr-Pro-OH; 40 mM Trp-Phe-NH_2; $\phi_{O/W}$ = 3:1; 37°C). (b) Effect of reaction temperature (20 mM Boc-Tyr-Pro-OH; 40 mM Trp-Phe-NH_2; $\phi_{O/W}$ = 3:1; 200 rpm).

As shown in Fig. 1a, the yield of Boc-Tyr-Pro-Trp-Phe-NH_2 increased as the rotation speed increased up to approximately 200 rpm, and decreased with a further increase in rotation speed, as the protease was denatured under vigorous shaking. A rotation speed of 200 rpm was considered the most suitable for the synthesis of Boc-Tyr-Pro-Trp-Phe-NH_2. Figure 1b shows that the temperature of 35°C was considered optimal for the reaction.