

Electronic Supplementary Information for *Food & Function*

Supporting Information

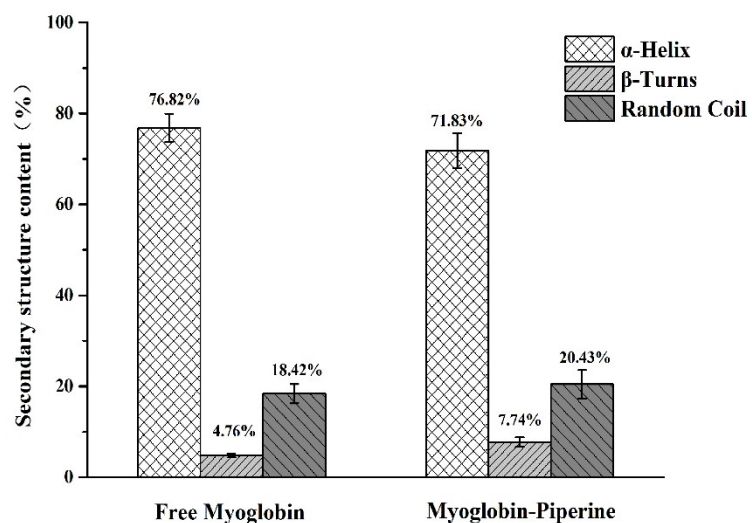


Fig.S1. Histogram of protein secondary structure content.

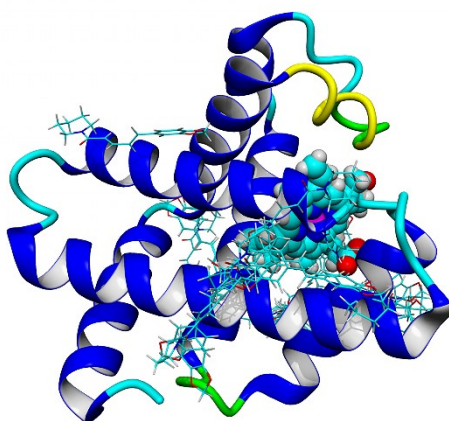


Fig. S2. The 100 docking diagrams of Mb with PIP binding modes.

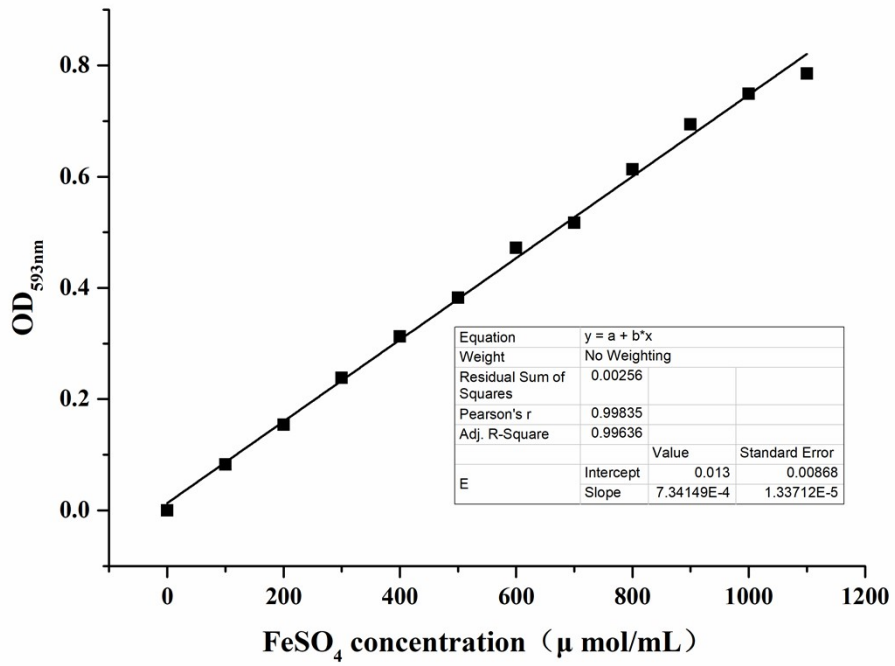


Fig. S3. The regression equation of the standard curve for the determination of  $\text{FeSO}_4$  as standard was  $y=0.0007x+0.013$  with the correlation coefficient  $R^2=0.9963$ .

Table S1. Stern–Volmer constants  $K_{sv}$ , binding constants  $K_a$ , and thermodynamic parameters for the PIP and Mb at 4, 25, and 37 °C.

$T$ (°C)	$K_{sv} \times 10^4$ (L/mol)	$R^a$	$K_a \times 10^5$ (L/mol)	$n$	$R^b$	$\Delta G^0$ (kJ/mol)	$\Delta H^0$ (kJ/mol)	$\Delta S^0$ (J/mol/K)
4	3.632±0.273 <sup>a</sup>	0.9814	0.4005±0.294 <sup>a</sup>	0.758±0.081	0.9811	-17.674	79.350	350.273
25	6.004±0.213 <sup>b</sup>	0.9727	0.8612±0.199 <sup>b</sup>	0.796±0.026	0.9773	-25.030		
37	13.382±0.197 <sup>c</sup>	0.9978	2.0844±0.136 <sup>c</sup>	1.021±0.048	0.9942	-29.233		

$R^a$  and  $R^b$  correlation coefficient for the  $K_{sv}$  and  $K_a$  values, respectively.

In each column different superscript letters indicate significant difference ( $p < 0.05$ ).

Table S2. The data of DPPH scavenging capacity, ABTS scavenging capacity values of PIP and Mb-PIP complexes.

	Sample	DPPH scavenging capacity/%	ABTS scavenging capacity/%
Free Piperine	0	0.000 ± 0.000 <sup>h</sup>	0.000 ± 0.000 <sup>h</sup>
	1	16.791 ± 1.569 <sup>gh</sup>	17.850 ± 2.135 <sup>g</sup>
	2	18.656 ± 0.953 <sup>fg</sup>	21.506 ± 2.884 <sup>g</sup>
	3	22.761 ± 2.508 <sup>ef</sup>	30.074 ± 3.946 <sup>f</sup>
	4	24.761 ± 1.518 <sup>f</sup>	33.755 ± 4.311 <sup>ef</sup>
	5	28.358 ± 3.298 <sup>e</sup>	56.355 ± 4.849 <sup>cd</sup>
	6	29.477 ± 1.313 <sup>e</sup>	61.044 ± 4.384 <sup>e</sup>
	7	29.850 ± 4.617 <sup>e</sup>	65.683 ± 1.187 <sup>e</sup>
Myoglobin-Piperine	0	3.665 ± 0.008 <sup>h</sup>	0.865 ± 0.011 <sup>h</sup>
	1	33.288 ± 3.196 <sup>c</sup>	23.834 ± 1.210 <sup>fg</sup>
	2	36.538 ± 5.333 <sup>de</sup>	33.232 ± 3.900 <sup>f</sup>
	3	39.510 ± 2.852 <sup>d</sup>	40.322 ± 2.701 <sup>e</sup>
	4	47.924 ± 3.675 <sup>c</sup>	62.074 ± 3.137 <sup>e</sup>
	5	48.141 ± 1.288 <sup>bc</sup>	68.081 ± 1.924 <sup>e</sup>
	6	52.046 ± 0.800 <sup>b</sup>	74.329 ± 2.246 <sup>b</sup>
	7	63.811 ± 4.534 <sup>a</sup>	80.516 ± 4.868 <sup>a</sup>

\* Values mean SD (n = 3). Different letters (a–h) above each column indicate significant differences ( $p < 0.05$ ).