**Supplementary Materials**

**Supplementary Material 1.** Themoisture contentof double-spotted pufferfish.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| No. | Fish skin (g) | m1(g) | m2(g) | m3(g) | Moisture content(%) |
| Experiment 1 | 5.0001 | 67.8624 | 64.7248 | 62.8623 | 62.75 |
| Experiment 2 | 5.0000 | 67.8719 | 64.6734 | 62.8719 | 63.97 |
| Experiment 3 | 5.0001 | 67.8542 | 64.7537 | 62.8541 | 62.01 |

m1 is the mass of the weighing bottle and the pufferfish skin (g); m2 is the mass of the weighing bottle and the dried pufferfish skin (g); m3 is the mass of the weighing bottle (g).

**Supplementary Material 2.** Yield of DPC.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| No. | Fish skin (g) | Dry basis weight (%) | DPC  (dwb) (g) | Yield of DPC  (dwb) (%) |
| Experiment 1 | 50 | 37.25 | 9.16 | 49.18 |
| Experiment 2 | 50 | 36.03 | 9.43 | 52.35 |
| Experiment 3 | 50 | 37.99 | 9.11 | 47.96 |



**Supplementary Material 3.** A standard curve for competitive enzyme-linked immunosorbent assay (ELISA) technique for detection of tetrodotoxin (TTX).



**Supplementary Material 4.** Summary of the LC–MS/MS results of the type I collagen α1-chains. The matched amino acid sequences of unique peptides are bold and red .



**Supplementary Material 5.** Summary of the LC–MS/MS results of the type I collagen α2-chains. The matched amino acid sequences of unique peptides are bold and red.



**Supplementary Material 6.** Primary structure identification of the type I collagen from DPC. The conserved sequence Gly-X-Y triplets of α1 (I) chains were marked as blue.



**Supplementary Material 7.** Primary structure identification of the type I collagen from DPC. The conserved sequence Gly-X-Y triplets of α2 (I) chains were marked as blue.



**Supplementary Material 8.** Thedenaturation temperature of DPC