

---

## **Preface**

The research work of the thesis entitled “Cerebroprotective effects of Indole-3-carbinol and its major metabolite in ischemic model” assessed the possible cerebroprotective mechanisms of indole-3-carbinol (I3C) and its metabolite diindolylmethane (DIM) for the treatment of ischemic stroke. Cerebral thrombosis as a result of atrial fibrillation or atherosclerosis is one of the leading cause of ischemic stroke. Ischemic stroke and reperfusion injury cause mitochondrial dysfunction, further aggravating brain injury. Therefore, we have evaluated the antiplatelet aggregation, antithrombotic, and mitochondrial protective mechanisms of I3C and DIM in ischemic stroke. The whole work has been compiled into six chapters: **Chapter 1** describes the introduction and significance of the present study. **Chapter 2** investigated the pharmacokinetics, brain penetration, and pharmacodynamics of I3C in focal cerebral ischemic rats. **Chapter 3** evaluated and compared the antiplatelet, antithrombotic, and thrombolytic activity of DIM with its parent compound, I3C. **Chapter 4** assessed the cerebroprotective role of DIM in focal cerebral ischemic injury in rats. **Chapter 5** determined the mitochondrial protective mechanisms of I3C in focal cerebral ischemic injury in rats. **Chapter 6** summarized the entire study completed with its essential outcomes.

---