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## LIST OF ABBREVIATIONS

|                                      |   |
|--------------------------------------|---|
| %                                    | Percentage                                    |
| °C                                   | Degree celcius                                |
| β-NADPH                              | β-nicotinamide adenine dinucleotide phosphate |
| µg                                   | Microgram                                     |
| µl                                   | Microliter                                    |
| ACF                                  | Aberrant crypt foci                           |
| AlCl <sub>3</sub> ·6H <sub>2</sub> O | Aluminium chloride hexahydrate                |
| BSA                                  | Bovine serum albumin                          |
| bw                                   | Body weight                                   |
| CDNB                                 | 1-chloro-2, 4-dinitrobenzene                  |
| CuSO <sub>4</sub> ·5H <sub>2</sub> O | Copper sulfate pentahydrate                   |
| DAB                                  | 3, 3-diaminobenzidine                         |
| DEAE                                 | Diethylaminoethanol                           |
| DMH                                  | 1, 2-dimethylhydrazine                        |
| DI                                   | Deionized water                               |
| DMSO                                 | Dimethyl sulfoxide                            |
| DTT                                  | Dithiothreitol                                |
| DW                                   | Distilled water                               |
| EDTA                                 | Ethylenediamine tetraacetic acid              |
| EGTA                                 | Ethyleneglycol tetraacetic acid               |

|   |  |
|---|--|
| G6P   | Glucose-6-phosphate                    |
| G6PD  | Glucose-6-phosphate dehydrogenase      |
| GAE   | Gallic acid equivalent                 |
| GSH   | Reduced glutathione                    |
| GSSH  | Oxidized glutathione                   |
| GST   | Glutathione-S-transferase              |
| HCl   | Hydrochloric acid                      |
| H <sub>2</sub> O <sub>2</sub>                       | Hydrogen peroxide                      |
| HPLC  | High Performance Liquid Chromatography |
| IgG   | Immunoglobulin G                       |
| KCl   | Potassium chloride                     |
| KH <sub>2</sub> PO <sub>4</sub>                     | Potassium dihydrogen phosphate         |
| L   | Litre                                  |
| M   | Molar                                  |
| mg  | Milligram                              |
| MgCl <sub>2</sub> ·6H <sub>2</sub> O                | Magnesium chloride hexahydrate         |
| min   | Minute                                 |
| ml  | Millilitre                             |
| mM  | Millimolar                             |
| Na <sub>2</sub> HPO <sub>4</sub>                    | Disodium hydrogen phosphate            |
| Na <sub>2</sub> HPO <sub>4</sub> ·2H <sub>2</sub> O | Disodium hydrogen phosphate dihydrate  |
| NaCl  | Sodium chloride                        |
| Na <sub>2</sub> CO <sub>3</sub>                     | Sodium carbonate                       |

|                   |                                    |
|-------------------|------------------------------------|
| NaNO <sub>2</sub> | Sodium nitrite                     |
| NaOH              | Sodium hydroxide                   |
| NSS               | Normal saline solution             |
| OD                | Optical density                    |
| PBS               | Phosphate buffer saline            |
| PCNA              | Proliferation cell nuclear antigen |
| PMSF              | Phenylmethanesulphonylfluoride     |
| s.c.              | Subcutaneous                       |
| TCA               | Trichloroacetic acid               |
| TLC               | Thin Layer Chromatography          |
| TPBS              | Tween-20 phosphate buffer saline   |
| UDP-GA            | UDP-glucuronic acid                |
| UGT               | UDP-glucuronyl transferase         |
| v/v               | Volume by Volume                   |
| w/v               | Weight by Volume                   |

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## ข้อความแห่งการริเริ่ม

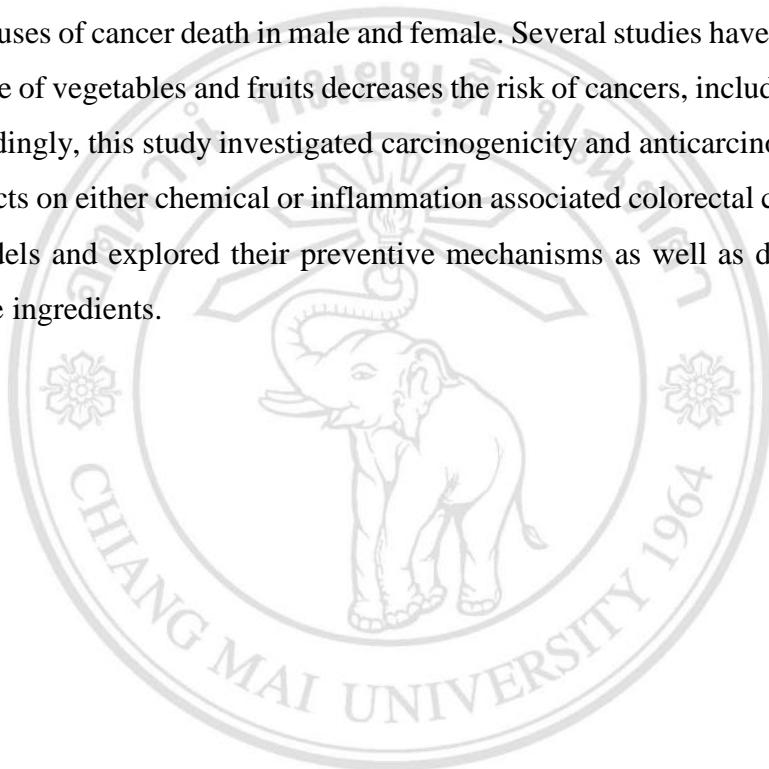
สาหร่ายเตาเป็นสาหร่ายน้ำจีดสีเขียว นิยมนำมาประกอบเป็นอาหารทางภาคเหนือของประเทศไทย ปัจจุบันมีการศึกษาเกี่ยวกับถั่วป้องกันมะเร็งของสาหร่ายเตาในสัตว์ทดลองน้อย มะเร็งลำไส้ใหญ่เป็นมะเร็งที่พบมากเป็นอันดับต้นๆ ในประเทศไทย และเป็นสาเหตุการตายของประชากรไทยทั้งเพศชาย และหญิง จากการวิจัยจำนวนมากที่รายงานเกี่ยวกับการรับประทานผัก และผลไม้สามารถลดความเสี่ยงของการเกิดมะเร็ง รวมถึงมะเร็งลำไส้ใหญ่ ดังนั้นงานวิจัยนี้จึงทำการศึกษาถั่วป้องกันมะเร็ง และต้านมะเร็งของสารสกัดสาหร่ายเตาต่อกระบวนการการเกิดมะเร็งลำไส้ใหญ่ที่ถูกเหนี่ยวนำด้วยสารเคมีทั้งในสภาวะที่มี และไม่มีการอักเสบร่วมด้วยในสัตว์ทดลอง นอกจากนี้ยังศึกษากลไกการป้องกันมะเร็ง และสารออกฤทธิ์ที่พบในสารสกัดเตา



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## STATEMENTS OF ORIGINALITY

*Spirogyra neglecta*, a freshwater green alga, is used as a traditional food in northern Thailand. Nowadays, there are a few studies on the cancer chemopreventive properties of *S. neglecta* in animal model. In Thailand, colorectal cancer becomes the most common and leading causes of cancer death in male and female. Several studies have been reported that high intake of vegetables and fruits decreases the risk of cancers, including colorectal cancer. Accordingly, this study investigated carcinogenicity and anticarcinogenicity of *S. neglecta* extracts on either chemical or inflammation associated colorectal carcinogenesis in animal models and explored their preventive mechanisms as well as determined the possible active ingredients.



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