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# Cancer Summit 2022



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## **CANCER AND CANCER THERAPY**

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Taipei Clty Hospital, Taiwan

### Different perspective towards Cancer care: The holistic philosophy of Traditional Chinese Medicine and conflicts with modern medicine

**Background:** Traditional Chinese Medicine (TCM) has sparked the public's attention for its potential in new drug development and its holistic view toward health, which is totally different from the reductionistic science of modern medicine. Traditional Chinese medicine is actually a medical science encompassing not only medicine but also philosophy and art in direct contrast to molecular-based modern medicine. As more and more multidisciplinary studies are being published, finding ways to integrate TCM with modern or precision medicine through artificial intelligence, new study design and technology may become a critical issue

**Methods:** This article aims to briefly review the TCM in cancer care and its conflicts with modern medicine, with a focus on the potential integration of TCM and modern medicine. We also provide insight for the key attributes of TCM and the associated investigation with Western research approaches.

#### **Results:**

#### Inconsistencies between TCM and modern medicine

The holistic theory of the TCM leads to difficulties in communication. The constitutional syndrome explains the dynamic changes occurring within a person no matter in what kind of cancer, while not emphasizing the gene defect or cancer character. The integration of multiherb formulas in TCM with changeable proportions is hard for precise confirming their effect though they work in clinical real world.

The "BLUE OCEAN" strategy of combined TCM and modern medicine

TCM should jump out of the field of drug research and development and focus instead on holistic design, including

adjust alignment. The thinking of a pioneer should involve connection with precision medicine, incorporating nextgeneration sequencing data into TCM trial.

**Conclusion:** Traditional Chinese Medicine is not only the delivery of multiherb medications but also a unique wholebody philosophy, while modern medicine is a singularly scientific direction. To connect art and science, we need to utilize more biotechnology, innovative methods, and integrated study design to explore multidisciplinary research in cancer care.

#### References:

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- Chien TJ; Liu CY; Fang CJ; Kuo CY. The Efficacy of Acupuncture in Chemotherapy-Induced Peripheral Neuropathy;Systematic Review and Meta-Analysis. "Integrative Cancer Therapies" 2019 Jan-Dec;18:1534735419886662. doi: 10.1177/1534735419886662.

#### Biography

Tsai-Ju Chien is a Hematologist and an Oncologist. The unique character of her is that she also possesses Traditional Chinese Medicine (PhD) and has applied TCM in cancer patients for years. She is pre-eminent in the field of Integrative Medicine, devoting her-self in integrating TCM in cancer care. Though working in a western- medicine based City Public Hospital, she spends a lot time in TCM research and practice, hoping to coordinate these two branches of medicine and meaningful to patients. Based on her clinical experience, some TCM has potential in improving symptoms related to Cancer or enhancing efficiency of chemotherapy. The mechanism is intriguing; some are compatible with immune modulation theory; and the connect with precision medicine is also intriguing. Therefore, Tsai-Ju Chien devoted herself in cross field study and looking forward to connect with who has interest in cross-cultural, cross- medicine talking.

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### Complete chloroplast genomes of two medicinal *Swertia* species: The comparative evolutionary analysis of *Swertia* genus in the Gentianaceae family

**Background/Aims:** We developed the comparative research of *Swertia kouitchensis* chloroplast genome with that of 22 *Swertia* species in the *Gentianaceae* family from the aspects of phenotype characteristics, structural and genetic features, and evolutionary relationship. Thus, we could exploit the distinctive differentia and identified traits to fully illustrate the relevance and distinction among these species on account of the complete database statement for these chloroplast genomes.

Methods: Total genomic DNA was extracted using the plant genomic DNA kit (Tiangen Biotech, Beijing, China) (Vieira et al. 2014). The DNA purity was detected with 1.0% agarose gel and the concentration of cpDNA was determined using a Nanodrop spectrophotometer 2000 (Rowan et al. 2011). DNA extracts were fragmented for 300 bp short-insert library construction. The library was sequenced in pair-end mode with the read length of 150 bp on an Illumina Hiseq 2500 platform (Cronn et al. 2008). The raw reads were filtered using Trimmomatic 0.35 with default parameters to remove adapters and low-quality bases (Bolger 2014). Then, the chloroplast genome of S. kouitchensis was assembled using the NOVOPlasty (v 4.2) software (Dierckxsens et al. 2017) with default parameters and the rbcL sequences as the seed. We used Gepard software to draw dot plots between the assembled genome and reference genomes to identify the structure of the chloroplast genome (Krumsiek et al. 2007). The chloroplast genome can be annotated using the CPGAVAS2 web service (http:// www. herba lgeno mics. org/cpgav as2) (Shi et al. 2019). The annotation was manually corrected using the Apollo software (Firtina et al. 2020). We calculated the GC content using BioXM software (Losko and Heumann 2009). Lastly, the assembly and annotation results of the S. kouitchensis chloroplast genome was submitted to GenBank and the accession number

OM617848 was acquired. Then, the comparative data of *S. bimaculata* chloroplast genome was downloaded from the NCBI database (MW344296.1), which was developed by the team of professor Weizhen from Zhengzhou University.

Results: The significant distinction in the specification between Strigoptera bimaculata and Swertia kouitchensis lies in the shape of the stem (1), pedicel (2), and leaf (3); The color of corolla (4) and seeds, spots (5), and the shape of the seed surface. In the species of S. bimaculata, it has a round stem (1), thick pedicel (2), erect or oblique extension, unequal length, oval to ovate-lanceolate leaf (3), mostly small purple spots (5) in the upper part of the yellow corolla (4), two semicircular yellow-green large gland spots (5) in the middle, and the brown round seeds with protruding on the surface. Meanwhile, the species of S. kouitchensis has four-angular erect stems (1); narrow pedicel wings (2), lanceolate leaf (3), yellow, white, and green corolla (4), apex and long pointed fruit that slightly increases with two glands (5) at the base; and yellowbrown seeds with a nearly smooth surface.

The chloroplast genome of *S. kouitchensis* encodes a total of 131 genes (110 unique genes), which include 88 PCGs (80 unique genes), 37 tRNAs (29 unique genes), and 8 genes encoding ribosome RNA (4 unique genes). The 88 PCGs encoded a total of 26,243 and 25,961 codons in the *S. kouitchensis* and *S. bimaculata* chloroplast genome. The most abundant codon of the two species was for isoleucine, and the least abundant codon was for cysteine.

The number of microsatellites repeat sequences was twenty-eight and thirty-two identified in the chloroplast genomes of *S. kouitchensis* and *S. bimaculata*, respectively. A total of 1127 repeat sequences were identified in all the 23 *Swertia* chloroplast genomes, and they fell into



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four categories. Furthermore, five divergence hotspot regions can be applied to discriminate these 23 *Swertia* species through genomes comparison. One pair of genus-specific DNA barcodes primer has been accurately identified. Therefore, the diverse regions cloned by a specific primer may become an effective and powerful molecular marker for the identification of *Swertia* genus. Moreover, four genes (ccsA, ndhK, rpoC1, and rps12) were positive selective pressure. The phylogenetic tree showed that the 23 *Swertia* species were clustered into a large clade including four evident subbranches, whereas the two species of *S. kouitchensis* and *S. bimaculata* were separately clustered into the diverse but correlated species group.

**Conclusion:** The complete chloroplast genome of *Swertia kouitchensis* has been sequenced and assembled, compared with that of *S. bimaculata* to determine the evolutionary relationships among species of the *Swertia* in the *Gentianaceae* family.

#### **Recent Publications**

- Du Q, ZENG J, Wang L, *et al*. Comparative genomics and phylogenetic analysis of the chloroplast genomes in three medicinal *Salvia* species for bioexploration. Research Square; 2022. DOI: 10.21203/ rs.3.rs-1582501/v1
- Du Q, Li J, Wang L, et al. Complete chloroplast genomes of two medicinal Swertia species: the comparative evolutionary analysis of Swertia genus in the Gentianaceae family. Planta. 2022 Sep;256(4):73. DOI: 10.1007/s00425-022-03987-z. PMID: 36083348.
- Du Q, Jiang M, Sun S, *et al.* The complete chloroplast genome sequence of *Clerodendranthus spicatus*, a medicinal plant for preventing and treating kidney diseases from Lamiaceae family. Molecular Biology Reports. 2022 Apr;49(4):3073-3083. DOI: 10.1007/s11033-022-07135-4. PMID: 35059973.

#### Biography

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