American Journal of Chinese Medicine, Vol 28, No. 1, pp. 3-8
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Seeds Induced to Germinate Rapidly by Mentally Projected 'Qi Energy' Are Apparently Genetically Altered

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(Accepted for publication May 26, 1999)

Abstract: Mentally controlled qi energy can induce crop seeds to sprout and root for several cm within about 20 min. The RAPD method was used to compare treated groups of wheat and pea seeds and their controls using 11 selected primers. Seven primers amplified polymorphisms in wheat seeds and 5 in pea seeds. It was thought preliminarily that qi energy changed the structure of a germination-correlated gene site speeding up expression and advancing it in time.

Chulin Sun is a woman with exceptional powers (Shen and Sun, 1996, 1998; Sun, 1998). A member of the Chinese Somatic Science Research Institute, she is a practitioner of Waiqi. Waiqi is a type of qigong that teaches the practitioner to bring the qi energy of traditional Chinese medicine under the control of the mind. Chulin Sun can induce plant seeds to grow shoots and roots several cm long within 20 min using mentally projected qi energy (Fig. 1). This has been demonstrated on more than 180 different occasions at universities as well as science and research institutions in China (including Taiwan and Hong Kong) as well as other countries (e.g., Japan, Thailand, Malaysia, etc.) (Ge *et al.*, 1998; Qin *et al.*, 1998; Lee *et al.*, 1999). We took part in and repeated the qi germination experiments seven times, and five of them succeeded (Ge *et al.*, 1998). This remarkable effect on seed development has drawn widespread attention (Tompkins and Bird, 1973; Lee, 1998), but the biological mechanisms that underlie this phenomenon are unknown. It will be of great significance to study the influence of qi energy on metabolism, growth and development, and gene expression,

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especially since these effects may be relevant to human health and longevity. RAPD (random amplified polymorphic DNA) is a molecular marking technique developed by two teams, Williams *et al.* (1990) and Welsh *et al.* (1990), to detect DNA polymorphisms. It uses the polymerase chain reaction (PCR) to amplify different genome sites with 10 (or 9)mer single primers. Differences among the genomes are revealed by the presence or absence of certain DNA fragments that are amplified, the DNA fingerprint being obtained by gel electrophoresis. Because of its speed, simplicity and high efficiency (Williams *et al.*, 1990), the RAPD method is widely used in research fields such as the identification of biological species and genera, and population and segregation analysis. In this paper, RAPD primers were used to test whether accelerated germination induced by qi energy was associated with changes in the genome.

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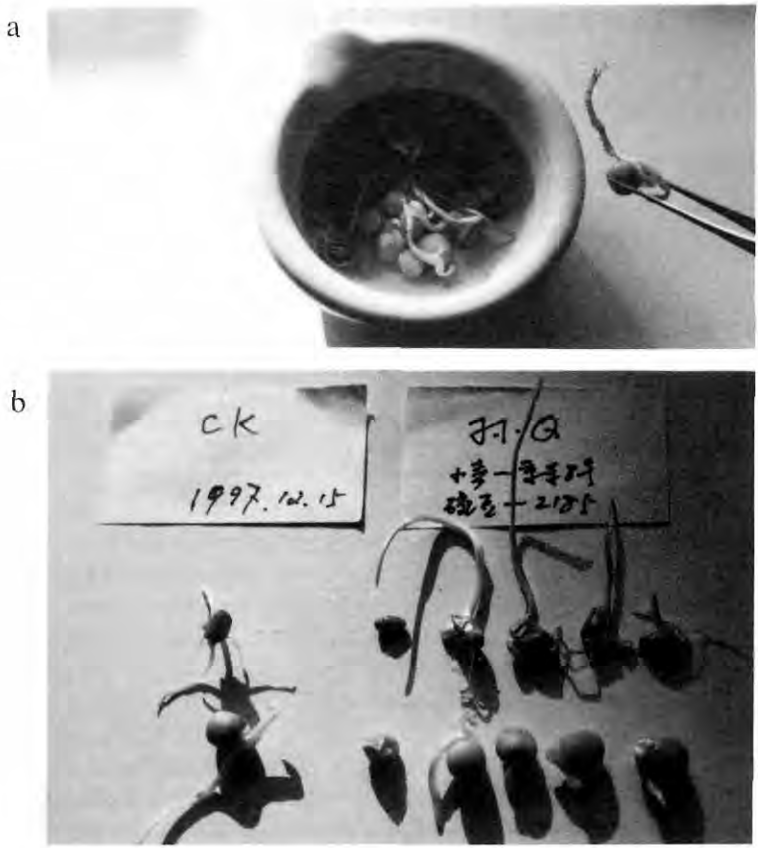

Figure 1. The rapid germination of wheat and pea seeds induced by qi energy and their controls. Figure 1a: Rapidly germinating wheat and pea seeds in the mortar 30 min after treatment with qi energy. Figure 1b: Left: The control wheat and pea seeds after one week of natural germination. Right: Rapidly germinating wheat and pea seeds 30 min after treatment with qi energy.

Materials and Methods

Seeds

The wheat seeds "Jingdong No. 8" and pea seeds "2185" were supplied by the Beijing Agriculture Scientific Institute and the Seed Farm of Luancheng County in Hebei Province, respectively. "Jingdong No. 8" is a conventional strain, which has been planted on a large scale in the Beijing area for eight to nine years. Both peas and wheat are very strict self-pollinators, so their genomes should be uniform.

Qi Treatment

Twenty wheat or pea seeds were placed into a small mortar, and after some water was added they were treated by Chulin Sun for at least 20 min. The seeds of the corresponding control groups germinated naturally in an incubator a week before at 23°C and then at 9°C to retard their growth once the lengths of their shoots and roots were deemed suitable.

DNA Extraction

Small amounts of DNA were prepared using phenol:chloroform extraction. Two hundred mg of shoot and root with the same length from both the treated and their corresponding control groups of seeds were cut into segments of 0.5 cm each. 400 µl of grind buffer [which contained 5% sucrose (w/v), 250 mM NaCl, 50 mM EDTA, 50 mM Tris-HCl (pH 7.5)] was added to the mortars, and the tissues were finely ground. This material was transferred to 1.5 ml Ependorff tubes with pipettes. The mortars were washed with 400 µl of the buffer and the material was transferred to the corresponding tube. The tubes were centrifuged at 5000 rpm for 2 min, and the supernatant discarded. Four hundred µl of suspension buffer [which consisted of 0.5% SDS (w/v), 250 mM NaCl, 25 mM EDTA, 250 mM Tris-HCl (pH 8.0)] was added to the sediments and mixed. DNA was extracted with an equal volume of phenol:chloroform:isopentanol (25:24:1) after incubation at 70°C for 20 min. A volume of isopropanol equal to 2/3 of that originally present was added to the supernatant to precipitate the DNA. This was centrifuged at 14000 rpm for 5 min and then washed with alcohol. The DNA was dissolved in 50 µl 1 x TE after vacuum desiccation and diluted 40 times when amplification was to be performed.

Polymerase Chain Reaction (PCR)

Eleven 10mer primers from kits (OPE, OPF, OPG, OPJ, OPP, OPT) supplied by Operon (Alameda, CA, USA) were selected. The experiments were conducted as described by Williams *et al.* (1990) and Welsh *et al.* (1990) with some modifications. Primer pairs were enzymatically amplified from 10-50 ng of wheat or pea DNA in a 20 µl reaction. Reactions contained 10 mM Tris-HCl, 50 mM KCl, 1.5 mM $MgCl_2$, 0.001% glutin, 0.1 mM of each nucleotide, 0.2 µM random primer and 1 U Taq polymerase. PCR amplification was performed in a PTC-100™ DNA amplifier, with a 1.5 min initial denaturation (94°), followed

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by 40 cycles of 45 seconds denaturation (94°C), 45 seconds annealing (36°C) and extension for 2 min (72 °C). After completion of the 40 cycles, there was a final extension for 4 min (72°C), and the PCR products were then horizontal gel electrophoresised (HGE) on 1.4% agarose gel, stained with ethidium bromide, visualized with ultraviolet light and photographed. The RAPD experiment was repeated three times, yielding the same results each time.

Results and Analysis

Among the 11 primers selected, 10 had amplified products. Eight primers are shown in Figure 2. Different primers amplified 1 to 14 bands. The length of the DNA fragments were between 0.2 to 3.5 kb. Apparent polymorphism was amplified in wheat by 7 primers (OPF-02, OPE-02, OPG-09, OPF-06, OPF-11, OPT-14, OPJ-04); specific bands were also present in the products of 5 primers (OPE-02, OPG-09, OPF-11, OPT-14, OPJ-04) in pea. All the findings can be repeated, and the same results were obtained in each of the three repetitions of the experiment.

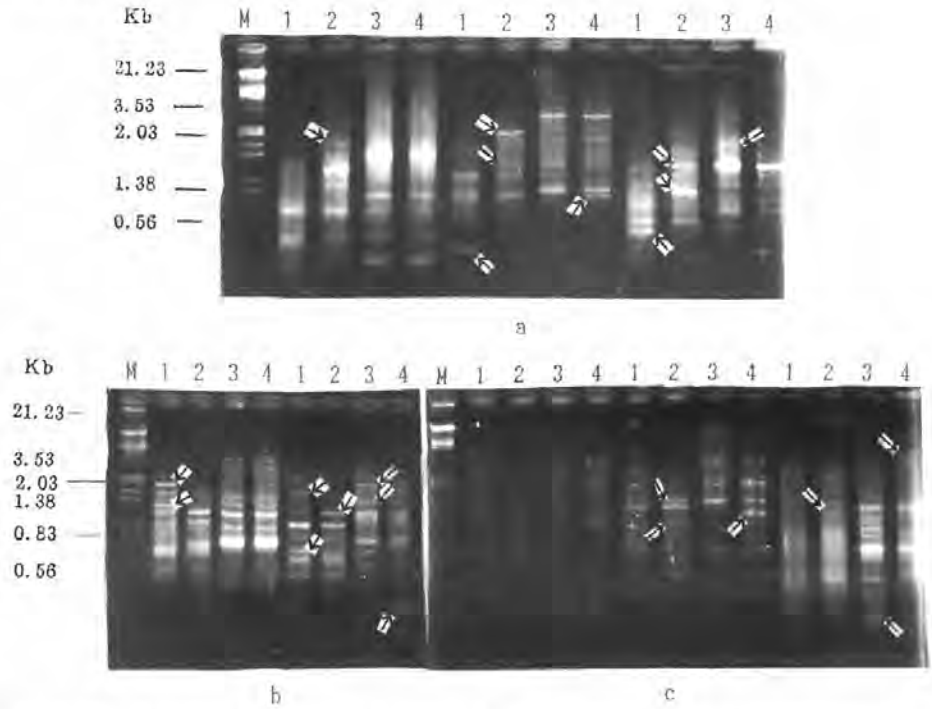

Figure 2. RAPD markers amplified by 8 primers. Figure 2a: Amplified products with primers OPF-02, OPE-02, OPG-09. Figure 2b: Amplified products with primers OPF-06, OPF-11. Figure 2C: Amplified products with primers OPT-06, OPT-14, OPJ-04 M. DNA molecular weight marker (λDNA/EcorI+HindIII) 1: Wheat seeds treated with qi energy 2: Control wheat seeds 3: Pea seeds treated with qi energy 4: Control pea seeds.

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The number of polymorphic DNA fragments amplified with different primers and their sequences are shown in Table 1. The differences between the two genomes were compared according to the presence or absence of the RAPD markers. If the same RAPD product appeared in the two genomes, they might have homologous sequences. If a product appeared in one genome but not in the other (i.e., polymorphism), the two genomes could be different. According to the above analysis, the functional sites of a major gene related to the germination of treated wheat and pea seeds may amplify polymorphism because of a change in combination ability due to changes in the bases. That is to say, qi energy may influence the structure of a germination-correlated gene site or those specific fragments that have close linkage with some gene related to seed germination.

Table 1. No. Polymorphic DNA Fragments Amplified with Different Primers and their Sequences

Primer code	Sequence 5' to 3'	No. of amplified polymorphic DNA bands	
		wheat	pea
OPE-02	GGTGCGGGAA	3	2
OPF-02	GAGGATCCCT	3	2
OPF-06	GGGAATTCGG	4	0
OPF-11	TTGGTACCCC	5	7
OPG-09	CTGACGTCAC	6	2
OPJ-04	CCGAACACGG	3	5
OPT-06	CAAGGGCAGA	2	0
OPT-14	AATGCCGCAG	3	1

Discussion

Seeds treated with qi energy can germinate and root for several cm within about 20 min. It takes control seeds at 23 °C a week to grow to the same length. This qi effect is impossible under normal rules of growth and development. According to earlier work, qi energy can change the structure of some cellular organs such as the mitochondria (Wang *et al.*, 1998) and also influence the metabolism of cells (Chien *et al.*, 1991; Zhang and Dong, 1998).

In the present study, qi increased the rate of cellular growth and division hundreds of times. This requires that the cells produce a great deal of energy within about 20 min. We observed the ultrastructure and the chemical location of ATPase (Ge *et al.*, 1998). The expected results were obtained: qi induced a large increase of ATPase activity in the bud tip cells of the germinating wheat seeds. This can supply more energy during rapid cell division, growth and differentiation that occurs during accelerated germination. Enzymes are the products of genes, so we can infer that it is a germination-correlated gene that broke through the limits of time and space; that the structure of a promotor or regulatory region was changed, initiating expression in advance. RAPD analysis gives preliminary support to

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this deduction. Certainly, further and detailed research work must be done repeatedly in order to verify this hypothesis.

Acknowledgment

This study was sponsored by Chinese Somatic Science Research Institute, Beijing, China. The help of Michael Hoffman, University of Utah, in reviewing and editing this manuscript is gratefully acknowledged.

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