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Study about the Living Environment of Vegetables According to Family Brassicaceae and Uses in the Folk

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Abstract: Vegetables are foods everyone, very nutritious and necessary for the men in life; they can't be insufficient, especially, vegetables cure the diseases, too. Here, we want to speak to the vegetables according to the family Brassicaceae. This is a kind of agricultural produce which is planted generally in Vietnam country; the leaves are used in order to eat, too. The mustard plants—vegetables, everyone provides from the suburbs district are such as: Binh Chanh, Hoc Mon, Cu Chi, Go Vap … and the provinces are such as: Long An, Tien Giang, Tay Ninh… very much. In this report, we would present food to plant, observe, analyze and study about the uses of mustard plants according to the family Brassicaceae, insects, epidemics on the mustard plants in order to sure the health, and give the nutrient and the medicament for the persons.

Key words: Vegetables, diseases, nutrients, health, persons.

1. Introduction

Some mustard plants had a source from India, China, everyone planted all of months, good, from the South to North of Vietnam; these mustard plants have a high nutritional value; besides, they are the medicinal plants, too; they help a health of persons [1-3].

- General name: Cải; Mustard plants;
- Scientific name: Brassica sp;
- Foreign name: Cabbage, Cauliflower;
- Family: Brassicaceae [4, 5].

In the leaves of mustard plants have: protein, lipid, carbohydrate, cellulose, carotene, Vitamin C, Vitamin A, B1, B2, acid amin, Ca, P, Fe… The mustard plants are not only eaten but also cure diseases such as: a constipation, a senescence, a headache, a gout, a lung disease, cough in asthma, wet cough support digestive system, support cardiovascular. The other author did not take care about this issue. Thus, we must study to plant in order to save the health for men [4-8].

2. Materials and Methods

2.1 Materials

+ Seeds of mustard plants were purchased from Hoa Sen Company.

+ The experiment was implemented in Ba Diem Village, Hoc Mon District, Ho Chi Minh City, all of year.

+ Vegetable samples were collected from vegetable growing households surrounding areas.

2.2 Methods

Mustard plants were planted by using only organic fertilizers, such as: soil herbs, animal fertilizer, powder lime, ash of husk, biological fertilizer [9, 10].

Plantation:

- Current/events: Everyone sows seeds since January to December of year.
- Everyone makes herbs, soil, manures and plants these vegetables.
- Everyone waters; he manures (it must have from 50-60% of humidity for garden).

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- Everyone cuts tops; he cuts branches.
- At last: Harvesting vegetables and nuts [11].

3. Results and Discussion

-Model of water:

In Table 1: pH was low; Color and Dirty: high; NO_2^-: no appear; NH_4^+: low; NO_3^-: high; Cl^-: low; Ca^{2+}, Mg^{2+}, SO_4^{2-} and PO_4^{3-}: high (comparing with regular); Coliform: very high; E. Coli: low.

-Model of soil:

In Table 2: pH: low; Ca^{2+} and Mg^{2+}: low; N total: high; SO_4^{2-}: high; P_2O_5: high; K_2O: low. The soil was poor and sour; we planted difficultly; therefore, we had to add powder lime, ash of husk…

-Vegetable and wild herbs: We found total 33 species 10 families [4, 5, 12-15].

Table 1 Result analyzed of water sample.

No.	Parameters	Concentrations	Methods	Limitation values*
1	pH	5.65	Standard of VN 6442-2000	6.5-8.5
2	Color (Pt/10)	8.00	Standard of VN 6158-1996	1.0
3	Degree of dirty (NT)	6.00	Standard of VN 6184-1996	2.0
4	N-NH_4^+ (mg/l)	0.20	Standard of VN 5988-1995	0.3
5	N-NO_2^- (mg/l)	-	Standard of VN 6178-1996	0.05
6	N-NO_3^- (mg/l)	0.50	Standard of VN 6180-1996	0.05
7	Cl^- (mg/l)	48.40	Standard of VN 6194-1996	250
8	Ca^{2+} (mg/l)	22.00	Standard of VN 6224-1996	4.0-6.0
9	Mg^{2+} (mg/l)	10.20	Standard of VN 6224-1996	2.0-3.0
10	SO_4^{2-}	31.04	Standard of VN 6200-1996	≤ 0.5
11	PO_4^{3-}	0.50	Standard of VN 6178-1996	≤ 0.1
12	Coliform (MPN/100 ml)	$2x10^3$	Standard of VN 4882-2001	≤ 1,000
13	E. Coli (MPN/100 ml)	≤ 0.02	Standard of VN 6846-2001	20

*According to Vietnam standard/national technical regulation on the limits of heavy metals contamination in food (Vietnam Technical Regulation 8-2: 2011/Medicinal Ministry) [16].

Table 2 Result analyzed of soil samples.

No.	Parameters		Concentrations	Methods	Limitation values*
1	pH (H_2O) 1:5		4.23	Standard of VN 5979:1995	6.5-8.5
2	pH (KCl) 1:5		4.01		6.0
3	EC (µS/cm) 1:5		101.20	Standard of VN 6650:2000	10-20
4	Ca^{2+} (mg/100 g)		1.92	AOAC 2000	4.0-6.0
5	Mg^{2+} (mg/100 g)		0.57		2.0-3.0
6	N total (%)		0.25	Standard of VN 6445-2000	0.1-0.15
7	SO_4^{2-} (mg/100 g)		12.48	Standard of VN 6456-2000	1.0-2.0
8	P_2O_5 (%)		0.54	AOAC 2000	0.06-0.08
9	K_2O (%)		0.02	AOAC 2000	0.3-1.5
10	Emery	Sand (%)	6.00	AOAC 2000	-
		Clay (%)	72.00		
		Flesh (%)	22.00		

*According to Vietnam standard/national technical regulation on the limits of heavy metals contamination in food (Vietnam Technical Regulation 8-2: 2011/Medicinal Ministry) [16].

Table 3 Names of vegetables according to families Brassicaceae and wild herbs.

No.	Quantity	Vietnamese names	Scientific names	Foreign names	Families	Uses
1	++	Ô rô	Acanthus ebracteus Vahl	-	Acanthaceae	Wild herbs, medicinal plants
2	++	Trái nổ	Ruella tuberosa L	-	Acanthaceae	Wild herbs, medicinal plants
3	+	Cỏ sướt	Achyranthes aspera L	-	Acanthaceae	Wild herbs, medicinal plants
4	++	Dền gai	Amaranthus spinosus L	Pigweet; Amarante, Epinard cochon	Amaranthaceae	Wild herbs, medicinal plants, vegetables
5	+	Cỏ cứt heo	Ageratum conyzoides L	White weed; Goal weed; Ageration	Asteraceae	Wild herbs, medicinal plants
6	+	Cỏ mực	Eclipta prostrata L	Kongolala	Asteraceae	Wild herbs, medicinal plants
7	+	Chân voi nhám	Elephantopus scaber L	Rouge elephant's food; Pied Elephant, Herbe de la jouissance	Asteraceae	Wild herbs, medicinal plants
8	+	Cỏ chua lè	Emilia sonchifolia (L) DC	Cupid's Shaving Brush; salade à lapin	Asteraceae	Wild herbs, medicinal plants
9	*	Cỏ hôi	Eupatorium odoratum L	Jack in the brush, Siam weed; langue de chat	Asteraceae	Wild herbs, medicinal plants
10	++	Cúc hoang	Tridax procumbens L	Mexican Daisy	Asteraceae	Wild herbs, medicinal plants
11	*	Cải bẹ xanh	Brassica juncea (L) Czern	Chinese Mustard, Indian Mustard	Brassicaceae	-Vegetables -Anti-tumor -Roots to have production of milk
12	*	Bắp cải	B. oleracea var capitata L	Cabbage; Chou fleur	Brassicaceae	-Vegetables -Having anti-inflammatory blood filtration
13	*	Bông cải	B. oleracea var botrytis L	Cauli flower, Chou fleur	Brassicaceae	-Vegetables -Provide vitamins, fibers, minirals, make anti-inflammatory
14	*	Bông cải xanh	B. oleracea var italica L	Broccoli	Brassicaceae	-Vegetables -Cancer prevention
15	*	Cải bẹ dúng	B. oleracea var sabauda L	-	Brassicaceae	-Vegetables -Help the digestive system
16	*	Cải rổ	B. oleracea var viridis L	Chou cavalier	Brassicaceae	-Vegetables -Help the digestive system -Reduce cough
17	*	Su hào	B. oleracea var caulorapa Pasq.	Kohlrabi, Chou rave	Brassicaceae	-Vegetables -Help a losing weight -Make a blood purification
18	*	Pe tsai	B. rapa L var amplexi caulis Tan	Pe tsai	Brassicaceae	-Vegetables -Dialysis
19	*	Cải bẹ trắng	B. pekinensis Lour	Pe tsai, Cabbage	Brassicaceae	-Vegetables -Help a losing weight -Cardiovascular, support
20	*	Cải ngọt	B. integrifolia (West) O. B. Schultz	-	Brassicaceae	-Vegetables to eat -Production milk, cure diseases: cough, constipate, chest pain, hemorrhoids
21	++	Màng màng tím	Cleome viscosa L	-	Capparaceae	Wild herbs, medicinal plants
22	+	Đầu riều, trai Ấn	Commelina bengalensis L	-	Commelinaceae	Wild herbs, medicinal plants
23	++	Trai thường	C. communis L	Day-Flowers	Commelinaceae	Wild herbs, medicinal plants
24	++	Bìm trắng	Jacquemontia paniculata (Burm) Hall.	-	Convolvulaceae	Wild herbs, medicinal plants
25	++	Bìm vàng	Merremia hederacea (Burm. f) Hall. f	Ivy Bind weed	Convolvulaceae	Wild herbs, medicinal plants
26	++	Cứt quạ	Gymnopetalum cochinchinensis (L) Kurz		Cucurbitaceae	Wild herbs, medicinal plants

Table 3 to be continued

27	+	*Cỏ cú*	*C. rotundus L*	*Nut grass, yellow nutsedge*	*Cyperaceae*	*Wild herbs, medicinal plants*
28	+	Cỏ chác	Fimbristylis miliacea (L) Vahl	-	Cyperaceae	Wild herbs, medicinal plants
29	+	Tai tượng Ấn	Acalypha indica L	Common acalypha; Ricinelle	Euphorbiaceae	Wild herbs, medicinal plants
30	+	Cỏ sữa lông	Euphorbia hirta L	Hairy Spurge, Pill bearing Square, Asthma Herbs; Herbs à piludes	Euphorbiaceae	Wild herbs, medicinal plants
31	+	Cỏ sữa lá nhỏ	E. thymifolia L	Wart well, Malome	Euphorbiaceae	Wild herbs, medicinal plants
32	+	Chó đẻ	Phyllanthus urinaria L	-	Euphorbiaceae	Wild herbs, medicinal plants
33	+	Thầu dầu	Ricinus communis L	Castor oil plant; Ricin	Euphorbiaceae	Wild herbs, medicinal plants

Classifying according to Professor Pham Hoang Ho, book: *Trees of Vietnam Country* (1991-1993), Chapters 1-5, Montreal Publishing. The list of names according to order: A, B, C, D.
Symbol: +: little, ++: average, +++: much, ☆: very much.

At the water, soil samples that we analyzed were poor, sour; in the plantation if we buy the chemical fertilizers, it is certain that heavy metals will higher; here we had the organic fertilizer; a choice of wild herbs, we had a good result; heavy metals were little or no appear.

4. Conclusion

By our observation, this is a model of home-garden, having the factor, especially, around the mustard plants, there are many wild herbs which were used like medicinal plants, we have 33 species according 10 families including a subfamily Mimosoideae.

About soil sample, we see that it is bad, sour, poor [17]; therefore, the farmers must have the organic fertilizer, add powder lime, ash of husk, algae…

Almost 10 plants according to family Brassicaceae are used vegetables source of nutrient, many vitamins; everyone can eat or make medicinal plants to cure the normal diseases because they are far from at the rural place [18], no drugstore, and 23 wild herbes, too, total are precious a source of medicine, necessary. We must remember to take advantage this source. The home-garden gives us beautiful landscape [19] and help to the life of men [20].

*Abbreviations: pH = Potential of Hydrogen; N = Nitrogen; P_2O_5 = Phosphor pentoxide; K_2O = Kali oxide; Cl^- = Clor; Ca^{++} = Calcium; Mg^{++} = Magnesium; SO_4^{2-} = Sulfate; PO_4^{3-} = Phosphate; NO_2^- = Nitrite; NO_3^- = Nitrate; NH_4^+ = Ammonium; Cu = Copper; Pb = Lead; Cd = Cadmium; As = Arsenic; Zn = Zinc.

Benefit Conflict

The author agrees that it has not one benefit conflict which is relative with the publishing result.

Contribution of the Author

An Nguyen Thi Ngoc: The author observed, investigated, searched everywhere about the trees, made the experiments, studies, wrote and prepared, presented a report. We guarantee to talk exactly

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Appendix

Fig. 1 Brassica integrifolia.

Fig. 2 Chinese Mustard.

Fig. 3 Cabbage.

(West) O. B. Schultz