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The Effects of Changing Containers and Some Food Supplements on Water PH

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Abstract

Water plays an important role in our life. Thus, the aim of this work is to study the effect of water containers and food supplements on the water PH. This is done by examining the water PH using PH meter. Water was poured inside pride, steel, glass and plastic containers. The food supplements added to water for different concentrations are mint, ginger, lemon, cinnamon and fenugreek respectively. The PH for all food supplements decreases upon increasing their concentrations, except ginger which increases his PH with concentration. The effect of the container on the water PH shows that only pride container increases water PH with time where it attains a maximum value of 7.17 after about 60 minutes. The ultraviolet test for water in pride shows increase of absorption coefficient with time

***Key words**:* mint, ginger, lemon, fenugreek, cinnamon, concentration, PH, UV

1.Introduction

Water is very important for all living organisms including human, animals, creatures and plants. This comes from the fact that more than 60% of the content of cells are water [1]. This means that any physical change of water properties or deviation from the normal style affects severely cells activities and may cause illness. water con be affected by heating to melt from ice state to become liquid. Further heating may cause water to evaporate [2]. Water ionization and disintegration to H and OH ions may be affected by heating or the container type or even the materials and powders added to it [3.4]. About more than 60% of the earth surface is filled with water in oceans. Fresh pure water in rivers and wells come from the water fall from clouds. Cloud are formed in the atmosphere due to water evaporation from oceans [5]. One of the most important physical properties of water is the so-called PH. This parameter measures the degree of water ionization into H positive ions and OH negative ions. When the PH is greater than 7 water is alkaline while when it is less than 7, water is an acidic. Alkaline water and blood helps in killing bacteria viruses and cancer cell [6]. The water PH can be increased to make it alkaline by keeping it in suitable containers, or by adding to it some food supplements or even by magnetizing water [7,8]. Many authors succeeded in changing water pH and some other properties utilizing these mechanisms [9,10]. The importance of water PH encourages to do this work.

2. Materials and method

2.1 Materials

Four different types of water containers were used to see how these containers affect the water PH. These samples are pride, steel, plastic and glass. Five different types of food supplements were dissolved in water. These are ginger, fenugreek, mint, cinnamon, and lemons.

2.2 Apparatus

The Equipment used in this work are PH meter and UV spectrometer.

2.3 Method

1-Water from water pipes are directly power inside the pride clay, steel, plastic and glass
2-Their PH was measured and recorded in tables and displayed graphically
3- The food supplements ginger, fenugreek, mint, cinnamon, and lemons
were immersed in water for about10 hours. Different concentrations of the extracts of these supplements were prepared by adding (1cc,2cc,3cc up to 10cc) to equal amounts of water
4- Their Ph were measured and recorded in tables and displayed graphically
5-The spectra of water in pride clay were measured after water is poured. where the first water sample was taken after the water takes 15 minutes and his UV spectrum was displayed. The second water sample was taken after 15 minutes from taking the first sample. This process was repeated 10 times

3. Results

The following tables and figures exhibited the results of PH and UV. Table (1): Relation between Concentration and Ph for mint in glass 15 min

Table(1) :Relation between Concentration and Ph for mint in glass 15 min

Concentration(cc)	PH
1	7.38
2	7.30
3	7.19
4	7.17
5	7.12
6	7.03
7	7.02
8	6.99
9	6.95
10	6.95

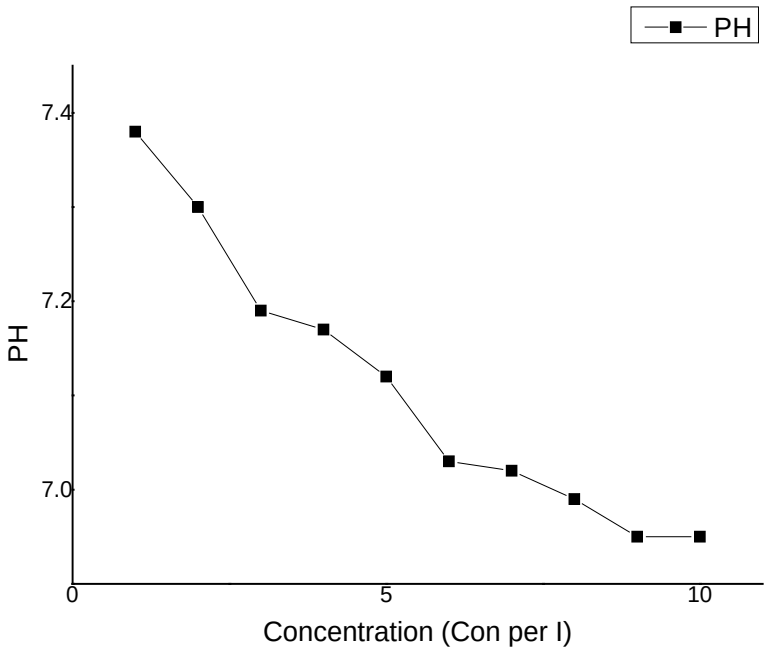


Figure (1): Relation between Concentration and Ph for mint in glass 15 min

Table (2): Relation between Concentration and Ph for mint in glass 30 min

Concentration(cc)	PH
1	7.25
2	7.24
3	7.17
4	7.15
5	7.10
6	7.09
7	7.06
8	7.03
9	6.99
10	6.96

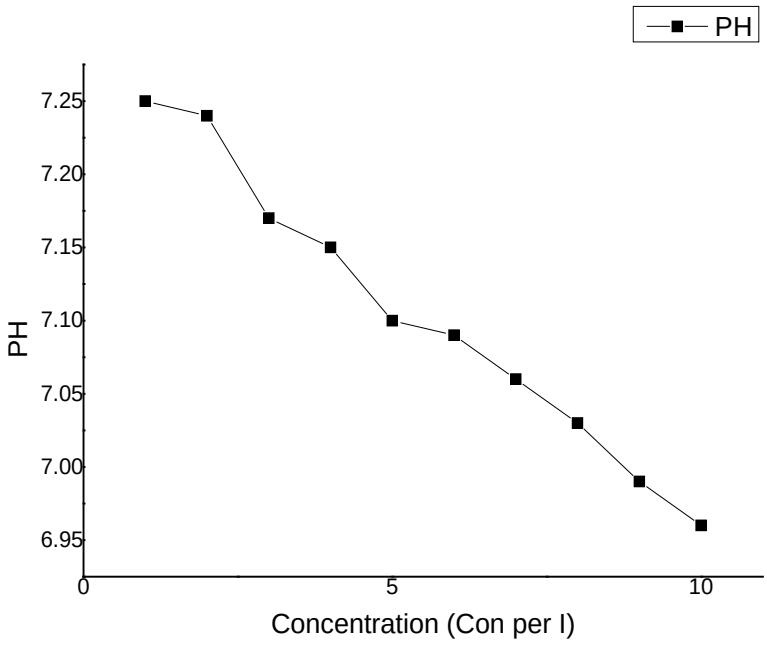


Figure (2): Relation between Concentration and Ph for mint in glass 30 min

Table (3) :Relation between Concentration and Ph for mint in glass 45 min

Concentration(cc)	PH
1	7.14
2	7.26
3	7.20
4	7.20
5	7.15
6	7.12
7	7.10
8	7.04
9	7.03
10	7.00

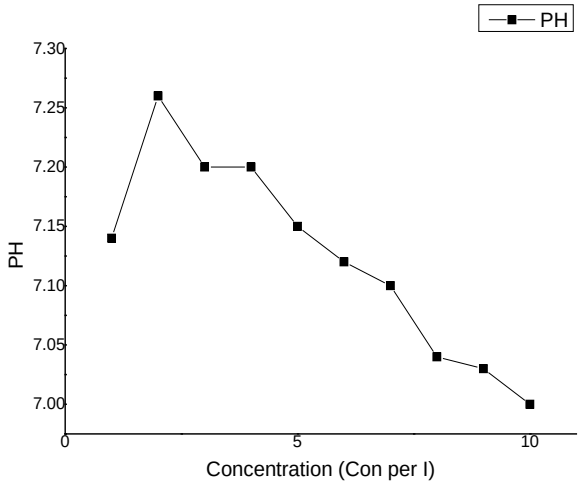


Figure (3): Relation between Concentration and Ph for mint in glass 45 min

Table (4) :Relation between Concentration and Ph for ginger in glass 15 min

Concentration(cc)	PH
1	7.49
2	7.58
3	7.64
4	7.68
5	7.72
6	7.74
7	7.73
8	7.72
9	7.80
10	7.76

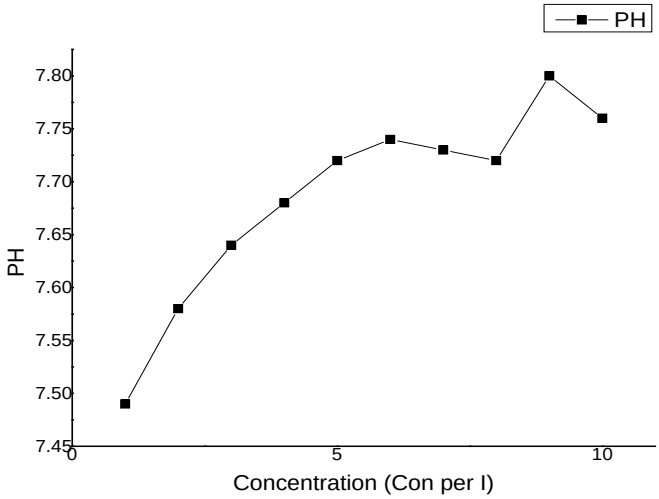


Figure (4): Relation between Concentration and Ph for ginger in glass 15 min

Table (5) :Relation between Concentration and Ph for ginger in glass 30 min

Concentration(cc)	PH
1	7.85
2	7.85
3	7.85
4	7.80
5	7.82
6	7.81
7	7.79
8	7.79
9	7.78
10	7.80

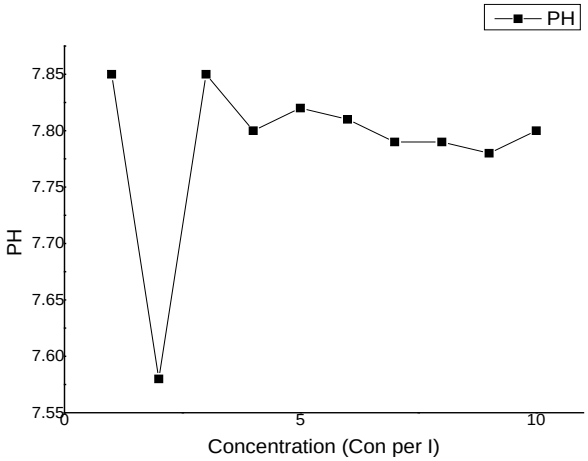


Figure (5): Relation between Concentration and Ph for ginger in glass 30 min

Table (6): Relation between Concentration and Ph for ginger in glass 45 min

Concentration(cc)	PH
1	7.81
2	7.86
3	7.80
4	7.78
5	7.78
6	7.78
7	7.76
8	7.78
9	7.78
10	7.78

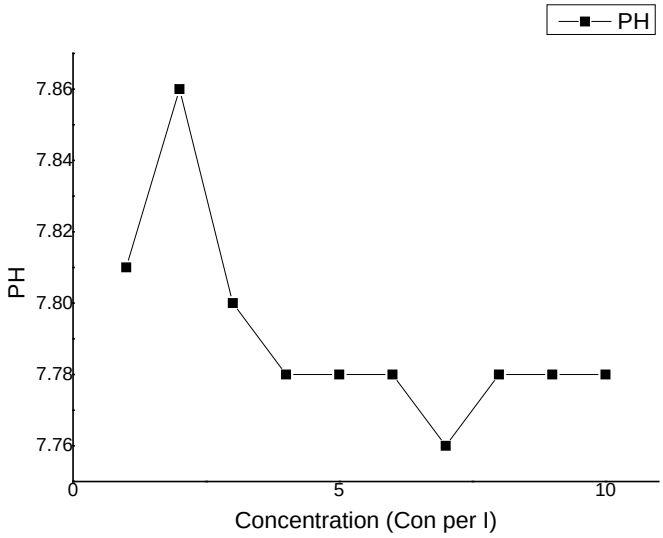


Figure (6) :Relation between Concentration and Ph for ginger in glass 45 min

Table (7) :Relation between Concentration and Ph for fenugreek in glass 15 min

Concentration(cc)	PH
1	7.28
2	7.27
3	7.27
4	7.25
5	7.23
6	7.19
7	7.19
8	7.19
9	7.13
10	7.12

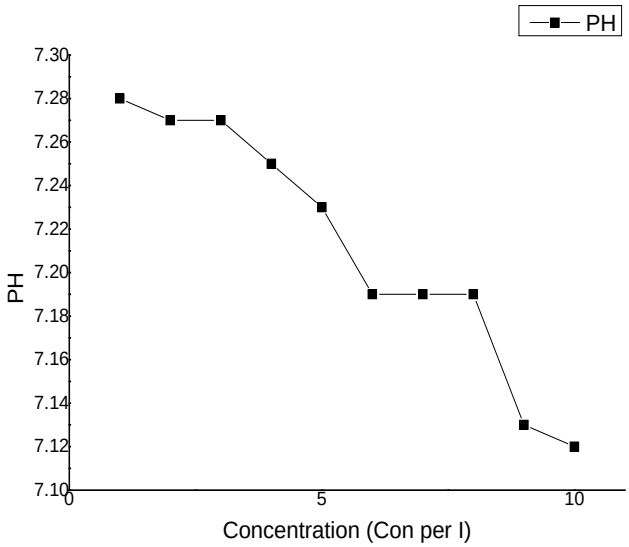


Figure (7): Relation between Concentration and Ph for fenugreek in glass 15 min

Table (8): Relation between Concentration and Ph for fenugreek in glass 30 min

Concentration(cc)	PH
1	7.43
2	7.38
3	7.37
4	7.35
5	7.30
6	7.29
7	7.25
8	7.23
9	7.19
10	7.16

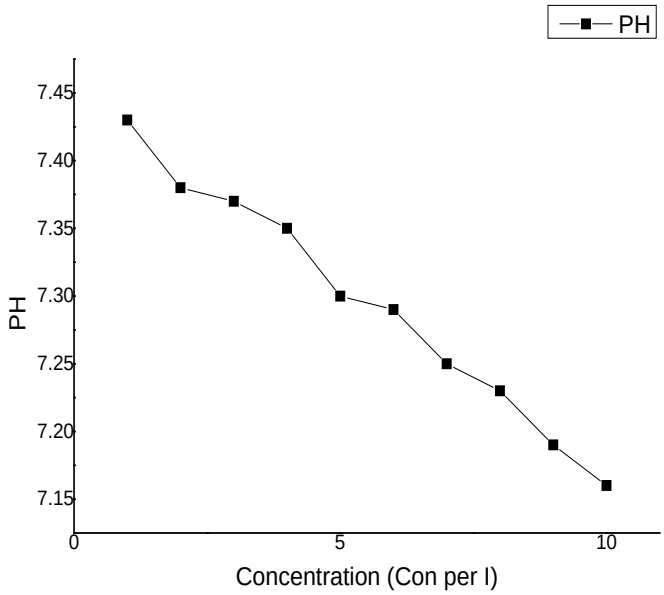


Figure (8): Relation between Concentration and Ph for fenugreek in glass 30 min

Table (9): Relation between Concentration and Ph for fenugreek in glass 45 min

Concentration(cc)	PH
1	7.21
2	7.42
3	7.42
4	7.37
5	7.34
6	7.29
7	7.27
8	7.19
9	7.11
10	7.17

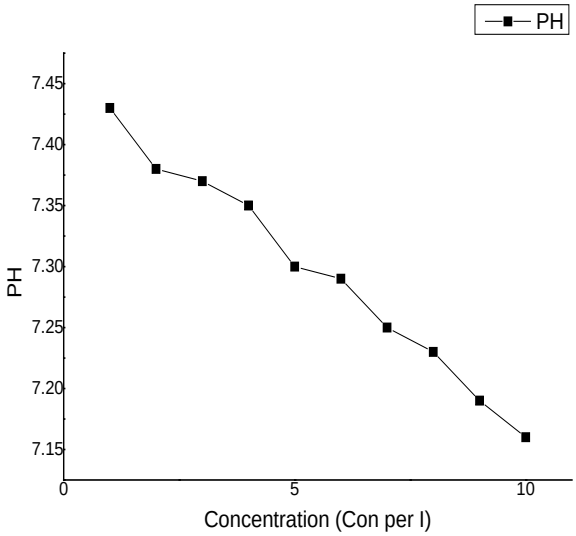


Figure (9): Relation between Concentration and Ph for fenugreek in glass 45 min

Table (10): Relation between Concentration and Ph for cinnom in glass 15 min

Concentration(cc)	PH
1	7.24
2	7.32
3	7.27
4	7.20
5	7.19
6	7.17
7	7.23
8	7.21
9	7.25
10	7.22

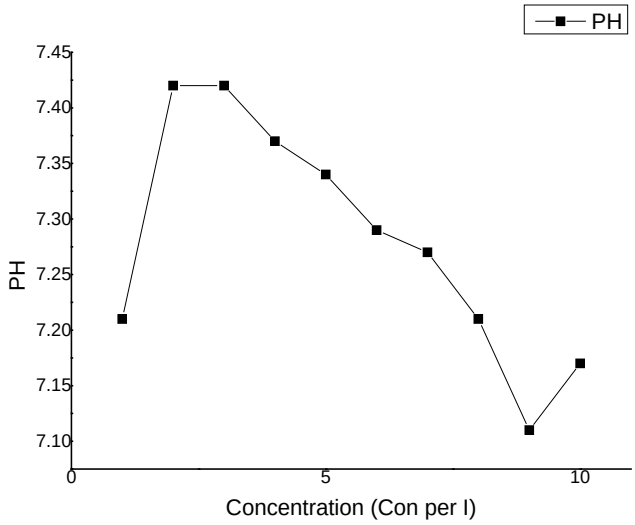


Figure (10): Relation between Concentration and Ph for cinnom in glass 15 min

Table (11): Relation between Concentration and Ph for cinnom in glass 30 min

Concentration(cc)	PH
1	7.39
2	7.35
3	7.33
4	7.31
5	7.29
6	7.28
7	7.24
8	7.21
9	7.17
10	7.15

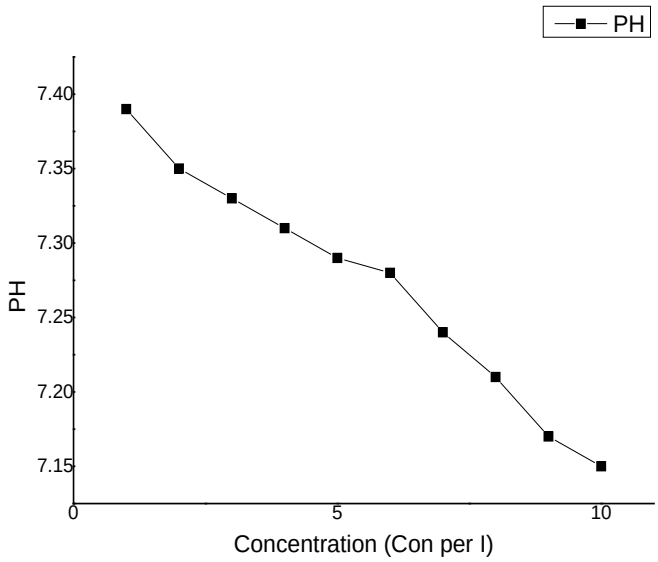


Figure (11): Relation between Concentration and Ph for cinnom in glass 30 min

Table (12): Relation between Concentration and Ph for cinnom in glass 45 min

Concentration $_{cm}$	PH
1	7.46
2	7.42
3	7.36
4	7.33
5	7.34
6	7.31
7	7.27
8	7.26
9	7.24
10	7.23

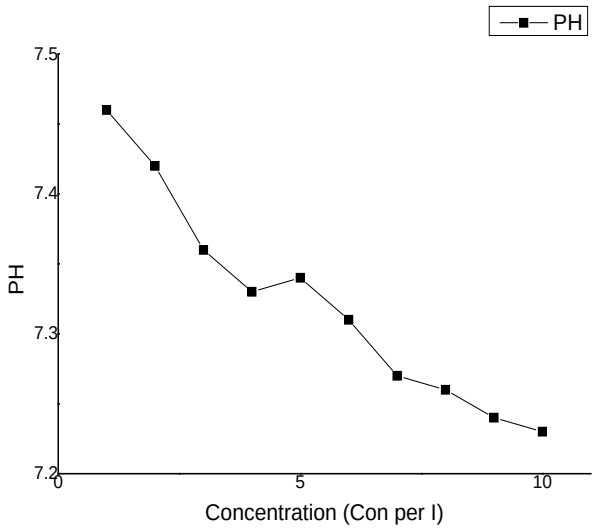


Figure (12) :Relation between Concentration and Ph for cinnom in glass 45 min

Table (13) :Relation between Concentration and Ph for lemon in glass 15 min

Concentration(cc)	PH
1	4.09
2	3.35
3	3.15
4	3.03
5	2.98
6	2.90
7	2.85
8	2.83
9	2.81
10	2.77

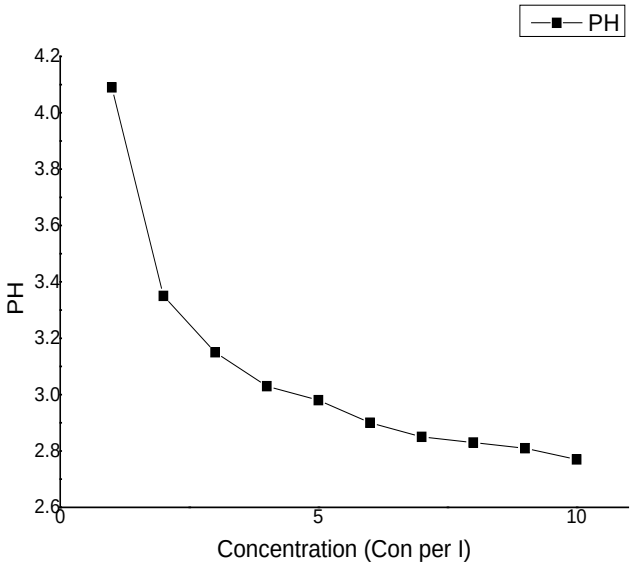


Figure (13): Relation between Concentration and Ph for lemon in glass 15 min

Table (14): Relation between Concentration and Ph for lemon in glass 30 min

Concentration $_{cm}$	PH
1	3.90
2	3.30
3	3.12
4	3.00
5	2.94
6	2.87
7	2.84
8	2.80
9	2.78
10	2.73

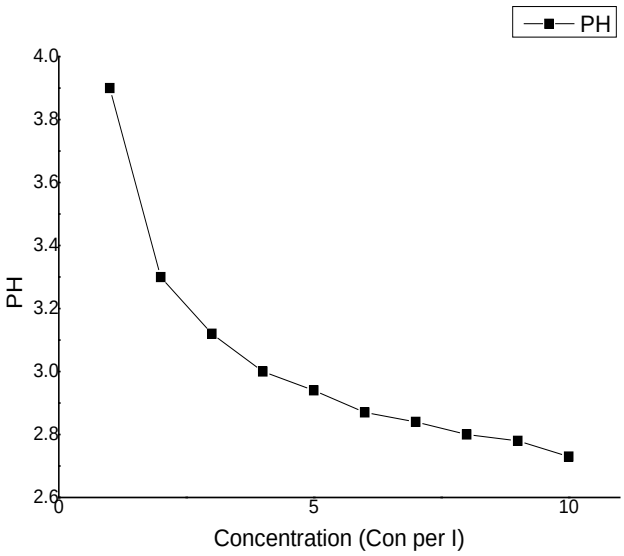


Figure (14): Relation between Concentration and Ph for lemon in glass 30 min

Table (15) :Relation between Concentration and Ph for lemon in glass 45 min

Concentration $_{cm}$	PH
1	3.90
2	3.29
3	3.08
4	2.95
5	2.89
6	2.83
7	2.83
8	2.77
9	2.74
10	2.70

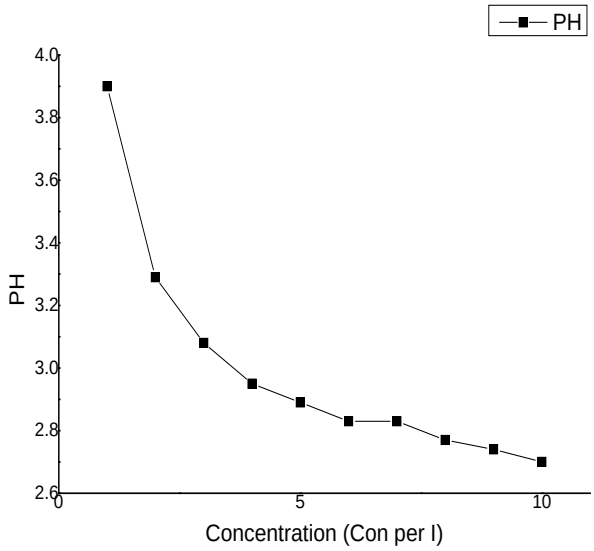


Figure (15): Relation between Concentration and Ph for lemon in glass 45 min

Table (16): Change of water PH for different container with time

sample	T_1=10min	T_2=20min	T_3=30min	T_4=40min	T_5=60min
pride	5.75	6.28	6.09	6.41	7.17
glass	5.69	5.92	5.86	6.05	6.04
plastic	5.67	5.82	5.80	5.99	5.99
steel	5.68	5.82	5.95	5.99	6.02

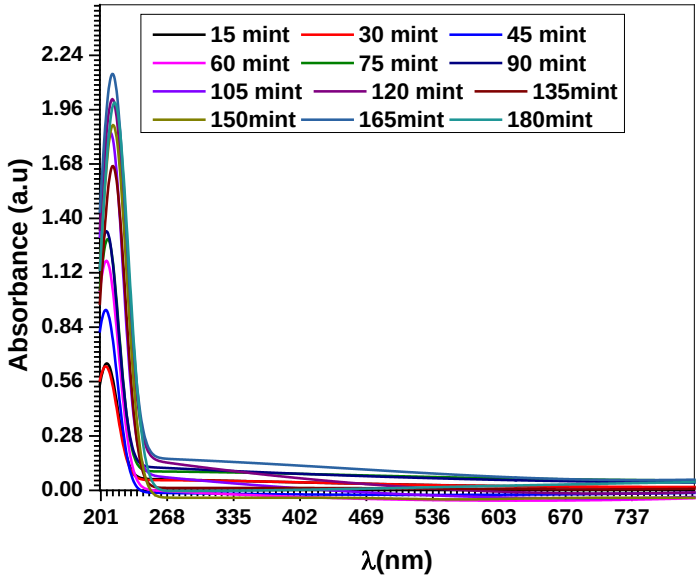


Figure (17):The absorbance of water in pride with different time

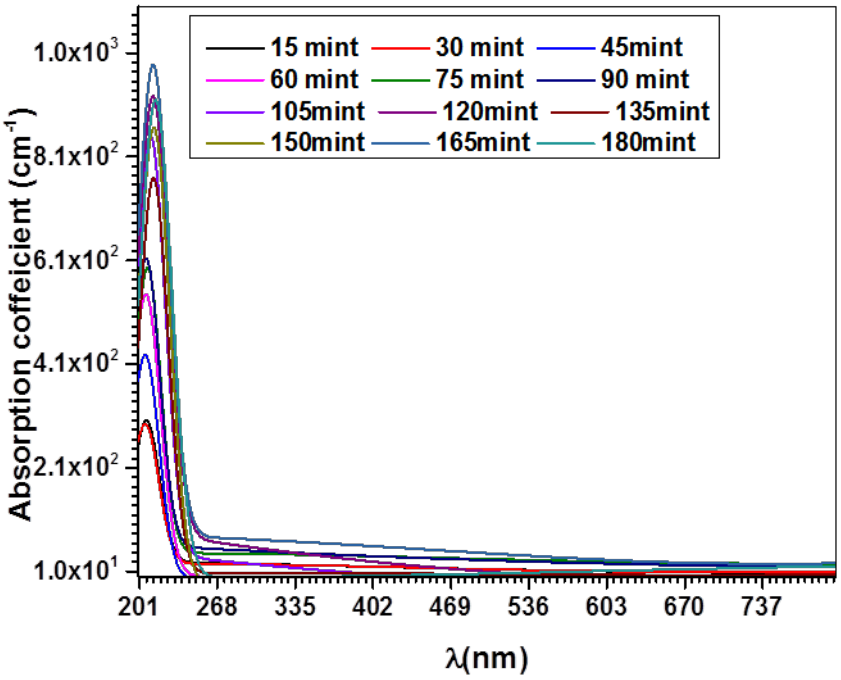


Figure (18): The absorption coefficient of water in pride with different time

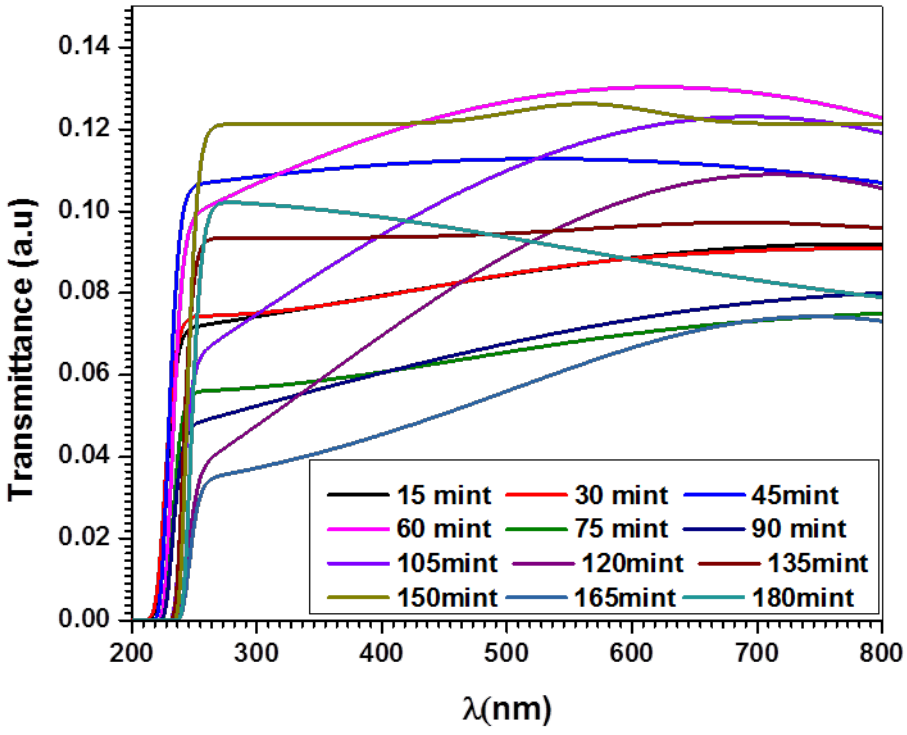
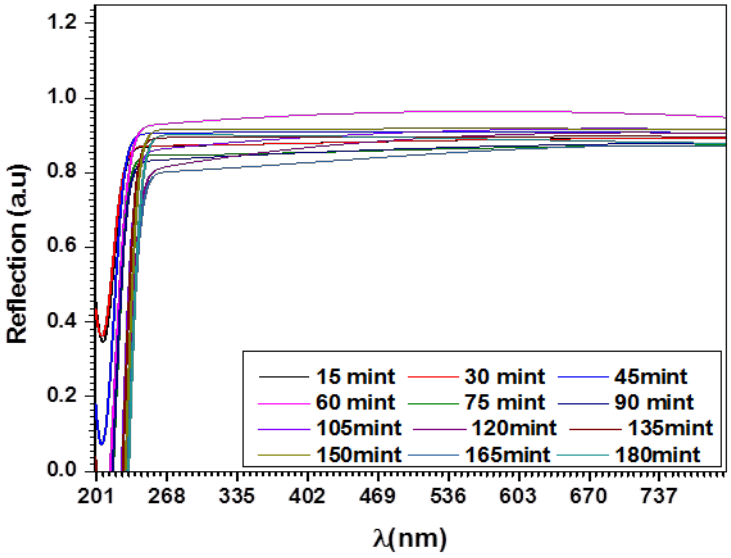


Figure (19): The transmittance of water in pride with different time



Figure(20):The reflection of water in pride with different time

3.Discussion

The PH of water when one added mint, ginger, lemon, cinnom, and to water fenugreek then put them in pride, steel, plastic, glass, and sometimes copper containers were studied. The changes of water PH with time when the water was put in pride, steel, plastic, and glass were also studied. All PH tests were made in a glass container. For lemon, mint and cinnom the measurements of PH immediately after pouring water or after 15, and 30 minutes shows decrease of PH upon increasing their concentrations as shown by figures 1,2, 3, However ginger PH increases with concentration (figure 4,5,6). This means that all tested supplements except ginger decreases water ionization. A final tests were done using UV and PH meter for the evolution of absorption coefficient and water ionization with time when water was poured or put in pride, glass, steel and plastic containers. The UV result which was examined for pride only show increase of absorption coefficient with time taken by water inside the pride. The pH tests for pride shows that the PH increases considerably about 5to about7 within about 60 min (table16).The PH in steel and glass changes slowly during 60 min water stay time .For plastic the PH almost remain constant(table16)

4 Conclusion

The PH tests for mint, ginger, lemon, cinnom, and fenugreek when poured in pride, steel, glass and plastic containers, shows very interesting properties. The change of water PH and absorption when put inside pride, steel, glass and plastic shows that the pride increases water PH and absorption coefficient considerably. For other containers water PH does not change appreciably. The absorption coefficient increases with time

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