

**UTILIZATION OF SOME UNCONVENTIONAL SOURCES  
AS FOOD ADDITIVES**

By

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B. Sc. Agric. Sc. (Food Technology), Cairo University, 2010

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## ABSTRACT

**Mohamed Salah Mohamed Ghazal: Utilization of some Unconventional Sources as Food Additives. Unpublished M.Sc. Thesis, Department of Food Science, Faculty of Agriculture, Ain Shams University, 2016.**

The objective of current study was designed to evaluate unconventional sources of seeds such as pomegranate, garden cress and flax seeds to utilize it as food additives for improving the nutritional value and healthy properties of food products. Proximate composition, functional properties, phytochemical compounds, rheological characteristics and fatty acid profile were assayed. Seeds characterized by its higher content of proteins, ether extract, phytochemical compounds and minerals. Punicic acid ( omega – 5 )was the major fatty acid being 84 % in pomegranate seed oil, while the linolenic acid  $\omega - 3$  was the highest acid in garden cress seed oil.

Higher emulsion capacity and stability as well as foaming were observed for the investigated seeds amount the different pH values. Obtained data showed higher foaming stability for pomegranate and garden seed than flaxseed. On the other hand, these seeds characterized by its higher water and oil absorption.

Addition of seeds powder improved the water holding capacity and cooking quality of beef burger. Shrinkage and cooking loss decreased with increasing the addition of the investigated seeds powders. However, sensory properties of the fortified prepared beef burger samples were improved up to 2 % of pomegranate or garden seeds powder.

On the other hand, blending pomegranate or garden cress seed oils with sunflower oil improved the omega fatty acids profile. Also, blending

of sunflower oil with garden seed oil up to 50 % decreased the erucic fatty acid in the blended oil less than 5 % as reported by WHO recommendations.

Addition of pomegranate or flax seeds powder in wheat dough at ratios up to 10 %, improved the rheological and technological properties as well as sensory characteristics of prepared cookies.

The obtained results showed that the investigated non – conventional seeds are good sources as food additives in food products system.

**Key words :** Pomegranate seeds; garden cress seeds; flaxseed; unconventional, phytochemical, omega fatty acids, food uses and application, oil blending.

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# CONTENTS

	<b>Page</b>
<b>LIST OF TABLES</b>	<b>iv</b>
<b>LSIT OF FIGURES</b>	<b>vii</b>
<b>1. INTODUCCTION</b>	<b>1</b>
<b>2. REVIEW OF LITRATURE</b>	<b>5</b>
2.1 Agronomical conditions of unconventional seeds	<b>5</b>
2. 1. 1. pomegranate	<b>5</b>
2. 1. 2. Garden cress	<b>7</b>
2. 1. 3. Flaxseed	<b>9</b>
2. 2. Proximate composition of unconventional seeds	<b>11</b>
2. 3. Phytochemical and Bio-active constituents	<b>14</b>
2. 4. Fatty Acids Profile of unconventional seed oils	<b>17</b>
2. 5. Antioxidant activity	<b>20</b>
2. 6. Functional properties of the unconventional seeds	<b>23</b>
2. 7. Rheological characteristics	<b>26</b>
2.8. Healthy benefits of unconventional seeds	<b>28</b>
2. 9. Technological application of unconventional seeds in food processing	<b>31</b>
<b>3. MATERIALS AND METHODS</b>	<b>34</b>
<b>3.1. MATERIALS</b>	<b>34</b>
<b>3. 2. TECHNOLOGICAL TREATMENTS</b>	<b>34</b>
3. 2. 1. Preparation of seeds powder	<b>34</b>
3. 2. 2. Oils extraction	<b>34</b>
3. 2. 3. Preparation of oils blends	<b>35</b>
3. 2. 4. Preparation of beef burger	<b>35</b>
3. 2. 5 Preparation of cookies	<b>36</b>
3. 2. 5. 1. Preparation of flour blends	<b>36</b>
3. 2. 5. 2. Processing of cookies	<b>36</b>
<b>3. 3. ANALYTICAL METHODS</b>	<b>37</b>
3. 3. 1. Refractive index ( RI )	<b>37</b>

## II

3. 3. 2. Proximate chemical composition	37
3. 3. 3. Acidity	37
3. 3. 4. Iodine value ( IV )	37
3. 3. 5. Peroxide value ( PV )	38
3. 3. 6. Thiobarbituric acid Reactive substances value ( TBA )	38
3. 3. 7. Antioxidant activity	38
3. 3. 7. 1. Total phenolic content	38
3. 3. 7. 2. Total flavonid content	39
3. 3. 7. 3. Radical scavenging activity ( RSA )	39
3. 3. 8. Fatty acids analysis	40
3. 3. 9. Determination of mineals	41
3. 3.10. Functional properties of seeds	41
3. 3. 10. 1. Water and oil absorption	41
3. 3. 10. 2. Emulsifying Capacity (EC) and Stability (ES)	41
3. 3. 10. 3. Foaming Capacity (FC) and stability (FS)	42
3. 3. 11. Rheological properties of dough	42
3. 3. 11. 1. Farinograph	42
3. 3. 11. 2. Extensograph	42
3. 3. 12. Technological parameters of fortified beef burger	43
3. 3. 12. 1. Cooking loss and cooking yield	43
3. 3. 12. 2. Change of beef burger diameter (Shrinkage)	43
3. 3. 12. 3. Water Holding Capacity (WHC) and plasticity	43
3. 3. 12. 4. Sensory evaluation of beef burger	44
3. 3. 13. Technological properties of fortified cookies	45
3. 3. 13. 1. Evaluation of cookies for physical characteristics	45
3. 3. 13. 2. Sensory evaluation of cookies	45
3. 3. 14. Statistical analysis	46
<b>4. RESULTS AND DISCUSSION</b>	<b>48</b>
4. 1. Proximate composition of unconventional sources	48
4. 2. Phytochemical content	52
4. 3. Antioxidant activity	54

### III

4. 4. Fatty acids profile	56
4. 5. Functional properties	63
4. 5. 1. Water and oil absorption	63
4. 5. 2. Emulsification properties	65
4. 5. 3. Foam properties	67
4. 6. Beef burger fortified with pomegranate & garden cress seeds powder	71
4. 6. 1. Proximate composition of fortified beef burger	72
4. 6. 2. Physico-chemical properties of fortified beef burger	71
4. 6. 3. Technological quality characteristics of fortified beef burger	76
4. 6. 4. Sensory evaluation	82
5. Utilization of pomegranate and flax seeds powder in cookies	83
5. 1. Farino and extensograph of prepared dough	83
5. 2. Proximate chemical composition	90
5. 3. Physical properties of prepared cookies	92
5. 4. Sensory characteristics	94
<b>5. SUMMARY</b>	<b>97</b>
<b>6. REFERENCES</b>	<b>102</b>
<b>ARABIC SUMMARY</b>	

## LIST OF TABLES

<b>No.</b>	<b>Title</b>	<b>Page</b>
1	The principal constituents of pomegranate fruit parts	<b>10</b>
2	The recipe for prepared beef burger	<b>35</b>
3	The recipe of dried spices mixture used for beef burger processing	<b>36</b>
4	The recipe for cookies	<b>37</b>
5	Evaluation sheet used in sensory testing of prepared beef burger	<b>44</b>
6	Proximate chemical composition of pomegranate, garden cress and flax seeds	<b>49</b>
7	Elements analysis for pomegranate, garden cress and flax seeds	<b>50</b>
8	Total phenolic contents of (mg/g) of different seeds extracted by three solvents system	<b>53</b>
9	Total flavonoid contents ( $\mu\text{g/g}$ ) of different seeds extracted by three solvents system	<b>54</b>
10	Radical scavenging activity (%) of different seeds extracted by three solvents system	<b>55</b>
11	Fatty acid profile of garden cress and pomegranate seeds oil	<b>56</b>
12	Fatty acid profile of pomegranate seed oil ( PSO ) blends with sunflower oil ( SFO )at different levels	<b>60</b>
13	Fatty acid composition of garden cress seed oil and sunflower oil blends at different levels	<b>61</b>
14	water and oil absorption ( gm / 100 gm dry sample ) and water oil absorption index ( WOAI ) of pomegranate garden cress and flax seeds	<b>64</b>
15	Emulsion capacity (EC) of 1% water dispersion of pomegranate, garden cress and flax seeds at different pH values	<b>66</b>

16	Emulsion stability ( ES ) of 1 % water dispersion of pomegranate seeds as a function of pH values	<b>67</b>
17	Foaming capacity (EC) of 1 % water dispersion of pomegranate, garden cress and flax seeds at different pH values	<b>69</b>
18	Foam stability ( FS ) of 1 % dispersion of pomegranate, garden cress and flax seeds as a function of pH values	<b>70</b>
19	Moisture, ash, pH values and TBA of beef burger fortified with different levels of garden cress seeds powder during frozen storage	<b>74</b>
20	Moisture, ash, pH values and TBA of beef burger fortified with different levels of pomegranate seeds powder during frozen storage	<b>75</b>
21	Water holding capacity ( WHC ) and plasticity of control beef burger fortified with different levels of pomegranate seeds powder	<b>77</b>
22	Water holding capacity ( WHC ) and plasticity of control beef burger fortified with different levels of Garden cress seeds powder	<b>78</b>
23	Cooking loss and shrinkage of beef burger fortified with different levels of Pomegranate and Garden cress seeds powder.	<b>81</b>
24	Mean values of beef burger samples as affected by different levels of pomegranate seeds powder	<b>82</b>
25	Mean values of beef burger samples as affected by different levels of garden cress seeds powder	<b>83</b>
26	Farinograph parameters for wheat flour blend doughs	<b>86</b>
27	Extensograph parameter <sup>a</sup> for wheat flour blend doughs	<b>87</b>
28	Proximate composition of control cookies and	<b>91</b>

	cookies with different levels of flax and pomegranate seeds powder	
29	Physical characteristics of control, Flax Seed powder and Pomegranate Seeds powder incorporated cookies	<b>93</b>
30	Sensory characteristics scores of cookies containing pomegranate seeds powder at different levels of substitution	<b>95</b>
31	Sensory characteristics scores of cookies containing flaxseed powder at different levels of substitution	<b>96</b>

**LIST OF FIGURES**

<b>No.</b>	<b>Title</b>	<b>Page</b>
1	Minerals content for Pomegranate, garden cress and flax seeds	<b>51</b>
2	Total Phenolic content of pomegranate, garden cress and flax seeds extracted by different solvents system	<b>51</b>
3	Total flavonoid content of pomegranate, garden cress and flax seeds extracted by three solvents systems	<b>54</b>
4	Radical scavenging activity of pomegranate, garden cress and flax seeds extracted by three solvents	<b>55</b>
5	Iodine value of garden cress seed oil and blends with different levels of sunflower oil and Iodine values of pomegranate seed oil (PSO) and sunflower oil (SFO) at different level.	<b>62</b>
6	Water, oil absorption of pomegranate, garden cress and flax seeds	<b>64</b>
7	Emulsion Capacity (EC) of pomegranate, garden cress and flax seeds	<b>66</b>
8	Foaming Capacity (FC) of pomegranate, garden cress and flax seeds at different pH values	<b>71</b>
9	WHC of control beef burger fortified with different levels of pomegranate seeds powder	<b>79</b>
10	WHC of control beef burger fortified with different levels of Garden cress seeds powder	<b>79</b>

## VIII

- |    |   |           |
|----|---|-----------|
| 11 | Farinogram of different replacement levels for Flaxseed powder and control Farinogram | <b>88</b> |
| 12 | Farinogram of different replacement levels of pomegranate seeds powder and control    | <b>89</b> |