



**EFFECT OF COLD STORAGE ON THE PHYSO-CHEMICAL  
PROPERTIES AND BIOACTIVE COMPOUNDS OF  
AVOCADO FRUITS AND AVOCADO PULP OIL**

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## ABSTRACT

### **This study carried out:**

- To evaluate the different avocado fruits (Fuerte, Ettinger, Bacon, Hass and Pinkerton vars.) and their extracted oils.
- And also to study the effect of cold storage at  $5^{\circ}\text{C}\pm 1$  for 15, 30 and 45 days on the sensory attributes of untreated and treated (with hot air at  $40^{\circ}\text{C}\pm 1$  for 30min.) avocado fruits (Fuerte, Ettinger and Bacon vars.), chemical composition of these fruits pulp and physico-chemical properties, fatty acids composition, bioactive component (T. polyphenols, T. tocopherols, carotenoids, chlorophyll, phenolic acid, flavonoid compound and fat – soluble vitamins (A, D, E and K)) of extracted oils from these fruits pulp and compared them with fresh fruits at harvest time (control samples).
- Results showed that oil content of all fruits pulp of avocado varieties was high and defatted meals of fruits pulp of all avocado fruits was rich in minerals especially potassium element.
- Physico-chemical properties of all avocados fruit pulp were within in the limits of edible vegetable oils.
- Result indicated that avocado fruits oil of all varieties was high in unsaponifiable matters (%UNS), omega 9 and 6 ( $\text{C}_{18:1}$  and  $\text{C}_{18:2}$  acids), total polyphenols, total tocopherols, carotenoids and chlorophyll content.
- Result revealed that there wasn't difference in all sensory attributes for all varieties under study except for fruit size and defect skin and also eating quality for all avocado fruits varieties was low at harvest time.
- Storage untreated and treated of avocado fruits (Fuerte , Ettinger and Bacon vars.) at  $5^{\circ}\text{C}\pm 1$  for 15, 30 and 45 days related to:
  - There was a gradual increase in oils percentage (total lipid) and in minerals except for phosphor and calcium elements, and a

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- gradual decrease in total carbohydrates of fruits pulp by increasing storage periods compared to control samples.
- Also there was a gradual increase in the values of FFA, PV,  $K_{230nm}$ ,  $K_{270nm}$ , and SV and a gradual decrease in the color, RI, IV, and UNS% of avocados fruit pulp oil (AFPO) with prolonged storage periods compared with control samples.
  - And also there was a gradual increase in  $C_{16:0}$  and  $C_{16:1}$  acids and AI Factor and a gradual decrease in  $C_{18:0}$ ,  $C_{18:1}$ ,  $C_{18:2}$  and  $C_{18:3}$  acids, PI and COX factors of AFPO with delay storage time compared with control samples.
  - There was a highly gradual decrease in T.polyphenols, T.tocopherols, carotenoids and chlorophyll contents of AFPO with prolonged storage periods compared with control samples.
  - Amounts of A, D and E vitamins increased and amount of K vitamin decreased of AFPO with the end storage period (45 days).
  - Benzoic, Ellagic and Oleuropin phenolic compounds of AFBO were decreased by elapse storage time (45days).
  - Naringin flavonoid compound decrease in Fuerte and Ettinger fruits pulp oil and increased in Bacon fruit pulp oil.
  - All sensory attributes improved especially internal fruit attributes that related to improve the eating quality of avocado fruits compared with fresh fruits at harvest time.

**Key words:** Avocado fruits, post-harvest, cold storage, hot air treatment, chemical composition of avocado fruit physico- chemical properties of avocado fruits oil, fatty acids composition of oil, natural antioxidant of oil and sensory attributes.

## LIST OF ABBREVIATION

<b>AF</b>	: avocado fruit
<b>AFP</b>	:avocado fruit pulp
<b>AFPO</b>	:avocado fruit pulp oil
<b>°C</b>	: Degree Celsius
<b>e.g.</b>	: For example
<b>g</b>	: Gram
<b>mg</b>	: Milligrams
<b>min.</b>	: Minutes
<b>ml</b>	: Milliliter
<b>ppm</b>	: Parts per million
<b>wt.</b>	: Weight
<b>W/W</b>	: Weight per Weight
<b>μ g</b>	: Microgram (s)
<b>μL</b>	: Microliter (s)
<b>μmol</b>	: Micro mol

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