

# The Olive Tree

On average, olive flesh is composed of:

50–66% Moisture  
 20–30% Oil  
 4–8% Sugars  
 2–6% Polysaccharides  
 4–6% Proteins  
 1–3% Biophenols  
 1–2% Pectins  
 1–2% Others

On average, olives are composed of:

1–3% Seed  
 12–20% Pit  
 77–87% Flesh

## OLIVE LEAF

The olive leaf is full of natural antioxidants, the most prominent being oleuropein and hydroxytyrosol.<sup>1</sup> Extracts from the olive leaf have been shown to have a multitude of health benefits, such as positive effects on blood pressure, blood sugar, lipid profiles, insulin sensitivity, bone health and immunity.<sup>2–6</sup> There are also some studies which suggest that olive leaf extract can reduce inflammation, and has anti-cancer activity.<sup>7–11</sup>

## OLIVE FRUIT

The olive flesh contains a large variety of phenolic and other compounds which are potent antioxidants and beneficial to health. The major components of the olive fruit which have been shown to benefit health are:

- **Monounsaturated fat** – healthy fats that are the dominant fat found in the olive, in particular oleic acid (C 18:1 n-9). Consumption of monounsaturated fats may lower the risk of heart disease (through reducing risk factors, such as lowering low-density lipoprotein (LDL) cholesterol, and improving high-density lipoprotein (HDL) cholesterol), and benefit blood sugar and insulin levels for people with type 2 diabetes.<sup>14</sup>
- **Phenolic compounds** (e.g. hydroxytyrosol, tyrosol) – linked with a variety of health benefits primarily related to the antioxidant power (e.g. lipid lowering effects, anti-cancer activity, anti-inflammatory action, reduced platelet aggregation).<sup>15–17</sup>
- **Phytosterols** (e.g.  $\beta$ -sitosterol, campesterol) – shown to have a positive effect on lowering cholesterol levels, as well as some anti-cancer effects.<sup>15</sup>
- **Squalene** – powerful antioxidant which has been shown to reduce cholesterol levels, and have topical anti-cancer activity.<sup>16</sup>
- **Tocopherols** (e.g.  $\alpha$ -tocopherol) – have a number of potential health benefits such as prevention against certain types of cancer, heart disease and other chronic conditions.<sup>18</sup>
- **Oleuropein derivatives** (e.g. oleuropein, oleacin) – potent antioxidants, can reduce LDL oxidation, have potential as antiangiogenic agents in cancer, and some antimicrobial activity.<sup>4,11,18–23</sup>
- **Ligstroside derivatives** (e.g. oleocanthal) – oleocanthal (found in extra virgin olive oil) has been shown to work in a similar way to Ibuprofen, through having activity as a cyclo-oxygenase (COX) enzyme inhibitor – making it a powerful anti-inflammatory component of the olive.<sup>24,25</sup>
- **Lignans** (e.g. 1-acetoxypinoresinol, 1-pinoresinol) – preliminary research confirms that these phenolic compounds have biological and pharmacological properties which may be beneficial for health.<sup>26</sup>
- **Flavones** (e.g. apigenin, luteolin) – research shows that flavones possess anti-inflammatory, anti-cancer and antioxidant properties.<sup>27</sup>

## THE OLIVE SKIN

The skin of the olive predominantly contains pentacyclic triterpenes (such as erythrodiol, oleanolic and maslinic acid) which may have the potential to provide a significant natural defence against human breast cancer.<sup>12,13</sup>

## OLIVE STONE & SEED

Comprised mostly of hemicellulose, cellulose and lignin.<sup>28</sup> The main use of these substances is as a biofuel for the production of electric energy or heat.

## OLIVE PRODUCTS:

Through the production of olive oil, there are a variety of by-products which are rich in healthy compounds such as:

- **Phenolic compounds** linked with a variety of health benefits primarily related to the antioxidant power (e.g. lipid lowering effects, anti-cancer activity, anti-inflammatory action, reduced platelet aggregation).<sup>14,15</sup>
- **Squalene** – powerful antioxidant which has been shown to reduce cholesterol levels, and have topical anti-cancer activity.<sup>15</sup>
- **Tocopherols** – have a number of potential health benefits such as prevention against certain types of cancer, heart disease and other chronic conditions.<sup>16</sup>
- **Triterpenes** – may have the potential to provide a significant natural defence against human breast cancer.<sup>12,13</sup>

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