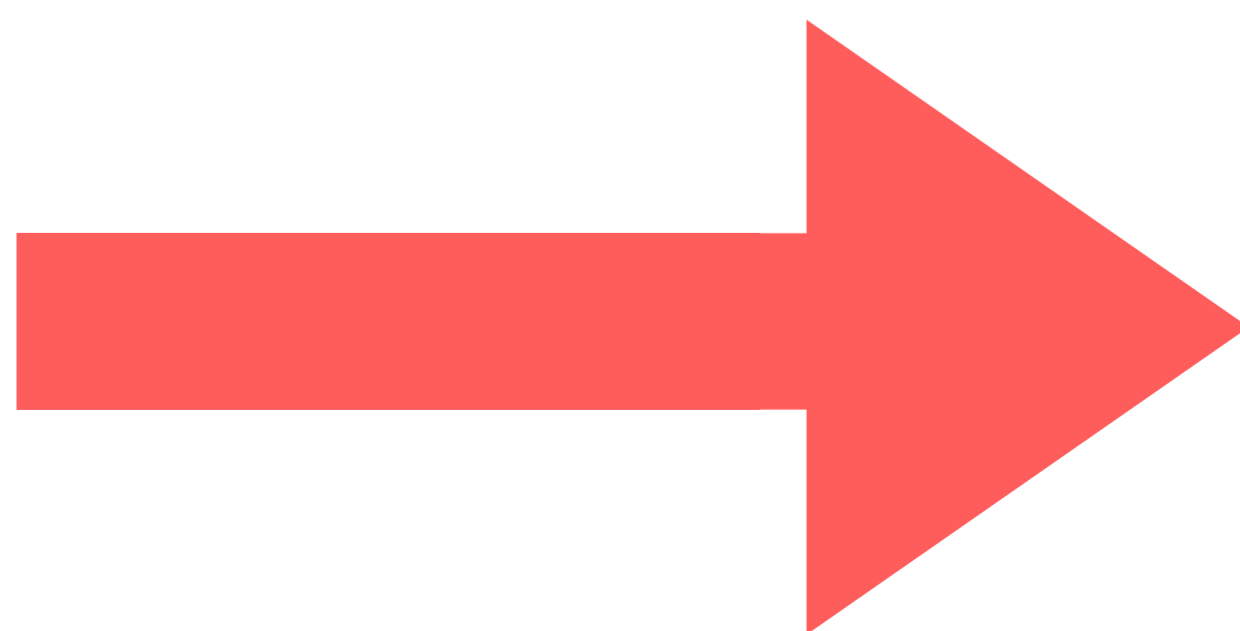




" Il 25 gennaio 2018 in un convegno internazionale, è stato presentato un lavoro realizzato dal dipartimento di Farmacia dell'Università G. d'Annunzio di Chieti-Pescara, in cui sono stati messi a confronto gli elementi presenti in 10 integratori fra i più conosciuti, tra cui il nostro Trico 11.

Per scoprire come si è classificato il Trico 11 rispetto agli altri non ti resta che continuare a leggere..."



Come vedi riportato nella tabella comparativa (**tabella12**) per ogni integratore è stata verificata la presenza o meno dei nutrienti indispensabili per contrastare la caduta.

Il **colore verde** indica non solo che la componente è presente ma che la quantità di componente presente è pari o superiore ai valori di riferimento (VNR).

Il **colore giallo** indica che la componente è presente nell'integratore ma non in quantità sufficiente.

Il **colore rosso** invece indica la totale assenza della componente.

Da questo confronto il Trico 11 risulta l'integratore più completo.

Gli elementi che sono contenuti in questo integratore infatti sono riconosciuti utili al benessere dei capelli, ed inoltre sono tutti conformi alle norme europee riguardo la dose giornaliera raccomandata.

Tabella 12. Valutazione quali-quantitativa degli integratori presi in esame.

	TRICO.11®	Integratore 1	Integratore 2	Integratore 3	Integratore 4	Integratore 5	Integratore 6	Integratore 7	Integratore 8	Integratore 9
Zinco	Verde	Giallo	Verde	Rosso	Giallo	Rosso	Giallo	Verde	Rosso	Giallo
Ferro	Verde	Rosso	Giallo	Rosso	Rosso	Rosso	Rosso	Rosso	Rosso	Rosso
Rame	Rosso	Verde	Rosso	Rosso	Rosso	Rosso	Giallo	Verde	Rosso	Verde
Selenio	Verde	Rosso	Rosso	Rosso	Rosso	Rosso	Giallo	Rosso	Rosso	Verde
Cisteina	Verde	Rosso	Rosso	Rosso	Rosso	Giallo	Giallo	Rosso	Verde	Giallo
Metionina	Verde	Verde	Rosso	Rosso	Rosso	Giallo	Giallo	Rosso	Verde	Rosso
Vit. C	Verde	Verde	Verde	Verde	Giallo	Rosso	Giallo	Rosso	Giallo	Rosso
Vit. E	Verde	Verde	Rosso	Rosso	Giallo	Rosso	Rosso	Rosso	Verde	Rosso
Vit. B5	Verde	Verde	Rosso	Verde	Rosso	Giallo	Verde	Verde	Verde	Rosso
Vit. B6	Verde	Verde	Rosso	Verde	Rosso	Giallo	Rosso	Verde	Giallo	Verde
Biotina	Rosso	Verde	Verde	Rosso	Rosso	Rosso	Rosso	Verde	Verde	Verde
Niacina	Rosso	Rosso	Rosso	Verde	Rosso	Giallo	Rosso	Verde	Rosso	Rosso

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Introduction

Hair loss represents one of the most diffuse aesthetic issues among the worldwide population, with close to 50% of men and women affected by pattern hair loss by age of 50 [1]. The loss of scalp is not life-threatening and is a natural part of the ageing process. However, it can adversely affect the individual's quality of life. The integrity of normal hair function relies largely on an adequate and balanced nutritional intake, essential trace elements deficiency, genetic conditions, hormonal imbalance or stressful events, which can alter the hair growth cycle equilibrium [2]. Dietary supplements have traditionally been used to improve hair growth, even if the connection between the use of specific substances and the prevention of hair loss not always is supported by scientific studies [3].

Nutrients comparative analysis

Iron (Fe)

- It has been demonstrated that chronic diffuse telogen hair loss is related with iron deficiency anemia [4].
- Treatment of patients with iron deficiency showed improving in the loss of hair reduction respect the control group [4].
- In the absence of anemia, studies are not clear whether there is a significant link between iron deficiency and hair loss [3].

Zinc (Zn)

- Zinc contributes to the keratin production, which forms the 95% of the hair structure.
- Statistically lower serum zinc concentrations have been observed in patients with hair loss disorders [5].
- A case series demonstrated reversal of hair loss following oral supplementation in five patients with telogen effluvium and zinc deficiency [5].

Copper (Cu)

- Copper is an important element for the keratinization process.
- A study was carried with patients who were diagnosed male and female pattern hair loss. Copper serum levels were evaluated between control and hair loss patients, but no significant differences were highlighted [6].
- The effect of copper on hair growth and shedding cycles still needs more study.

Selenium (Se)

- In animal studies, rats deficient in selenium display sparse hair growth, while knockout mice lacking specific selenoproteins exhibit progressive hair loss after birth [7].
- One case report of selenium deficiency in a young child reported hair disorders, improving after supplementation [8].

Cysteine

- Cysteine, together with methionine, is one of the principal constituent of hair. It contribute to the keratin formation for a quarter of the total [9].
- A German study shows that a specific combination of L-Cysteine and other two elements can reverse hair loss. The group of women who received the combination supplement evidenced a return to normal rates of hair growth [10].

Methionine

- Methionine is an essential amino acid, excellent source of sulfur, which is, together with cysteine, one of the principal constituent of hair.
- It can prevent premature hair loss, supplying sulfur to hair cells and connective tissues, thereby improving hair strength as well as normal growth and appearance of the hair [9].

Vitamin C

- Vitamin C, besides being a powerful antioxidant, also plays an important role in the synthesis of collagen and in supporting the keratin fibers crosslink [11].
- Because of this dual role it could be an important element for hair regeneration, helping in the optimal scalp preservation and more in general of the whole organism.

Vitamin E

- Vitamin E has good antioxidant properties and deficiency has no known link to hair loss. Nevertheless, these properties may help to repair damaged hair follicles and prevent tissue corrosion, which in turn encourages healthy hair growth.
- Supplementation in one study of twenty-one volunteers suffering from hair loss has showed significant increase in hair number compared to placebo [12].

Vitamin B5

- In 2001, a study showed that vitamin B5 and vitamin B6 could improve the trichogram of women with significant hair loss. The results were a net improvement in hair loss, especially related to telogen effluvium [13].
- However, the role of vitamin B5 in hair loss is not clear. Probably, as the rest of the B-vitamins, the improve of cells metabolism may also exert benefits to the hair [14].

Vitamin B6

- A study published in 2013 found that high-doses of vitamin B6 along with L-cysteine helped prevent hair loss during chemotherapy treatment in mice. A study published in 2011 showed that vitamin B6 may improve hair condition and prevent hair loss in a group of women dealing with diffuse alopecia [13].

Biotin

- Biotin is vitamin which help to convert certain nutrients into energy. It also plays an important role in the health of your hair, skin, and nails.
- Deficiency can result in alopecia, eczematous skin rash, conjunctivitis, and candidiasis [15].
- Despite its deficiency is rare, a study reported beneficial effect in patients with hair loss presenting short bowel syndrome [16].

Niacin

- Niacin contributes to the production of ATP and to the energy support for cells.
- A deficiency leads to pellagra, with phenomena such as dermatitis, hyperpigmentation and hair loss [11].
- There are still no studies linking its deficiency with hair loss despite some reviews mention this element among the components that could affect hair-related diseases [3].

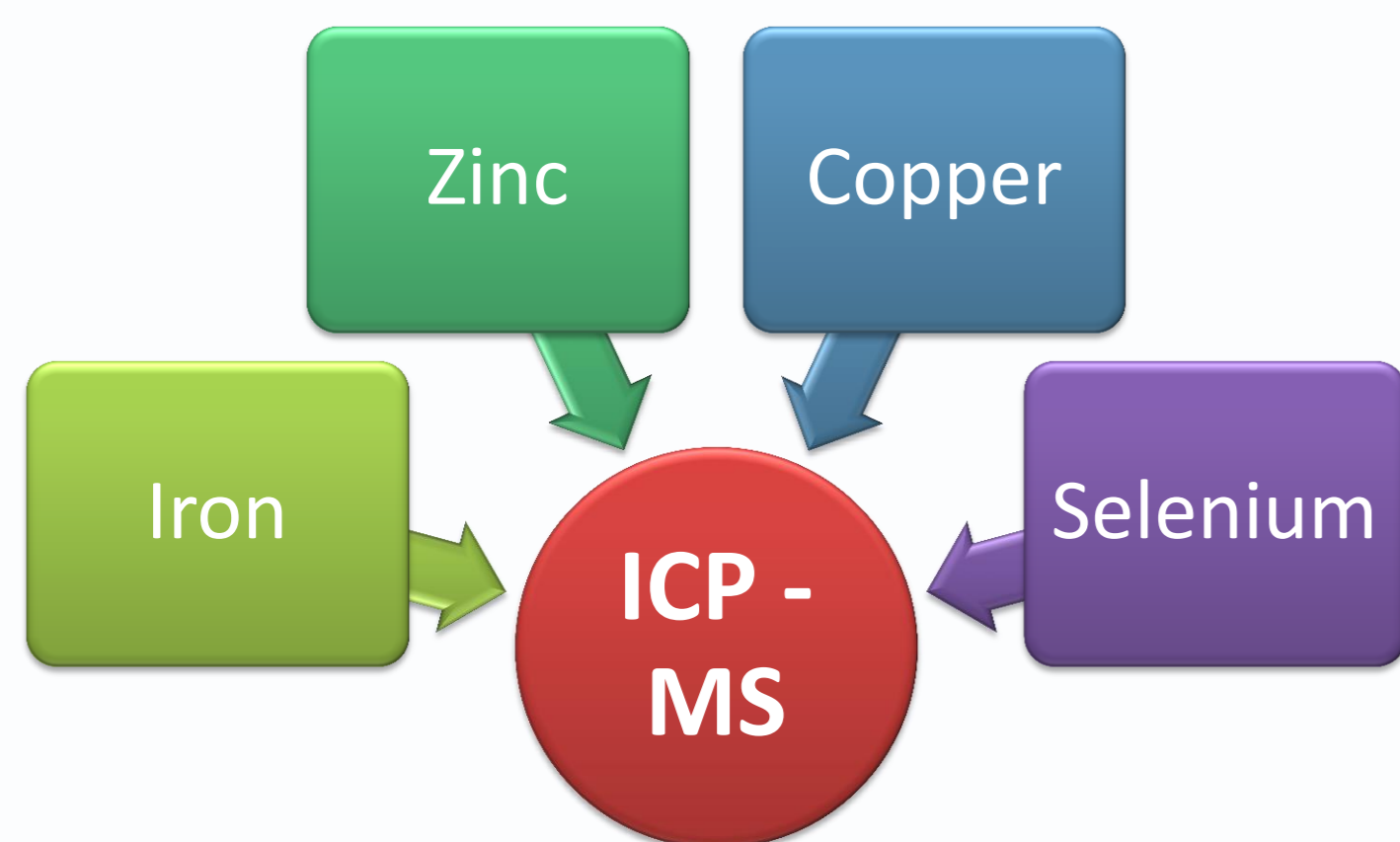
A comparative analysis of 10 hair loss supplements commercialized in Italy was performed*. Common ingredients were classified on the basis of their concentration, which was compared to the Daily Reference Intake (DRI) issued by the Regulation (EU) No 1169/2011 of the European Parliament [17]. The **GREEN** box shows that nutrient is present in the supplement formula and the concentration fits with the European DRI. The **RED** box indicates that the nutrient is not present into the composition, whereas the **YELLOW** box displays which element is present into the supplement formula but below the concentration described on the DRIs.

*The analysis is related only to the elements which are present in more than two food supplements. Single components which characterize every product are not take into account. Elements with no literature data about hair loss potential relationship are not take into account. The concentration of each element is valued on the basis of the information given by the company and scheduled on the box of the products.

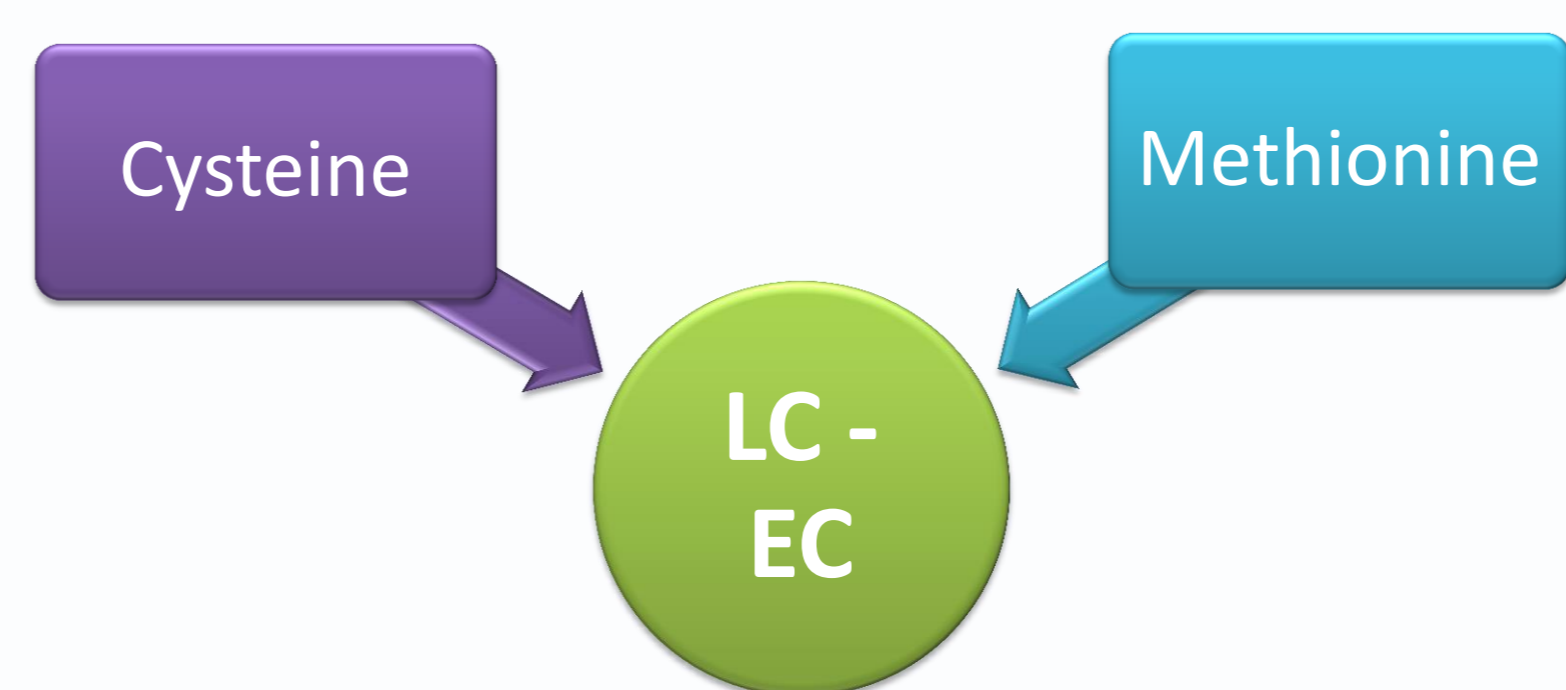
	TRICO.11*	Suppl. 1	Suppl. 2	Suppl. 3	Suppl. 4	Suppl. 5	Suppl. 6	Suppl. 7	Suppl. 8	Suppl. 9
Zinc	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Iron	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Copper	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Selenium	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Cysteine	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Methionine	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Vitamin C	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Vitamin E	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Vitamin B5	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Vitamin B6	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Biotin	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green
Niacin	Green	Green	Green	Green	Green	Green	Green	Green	Green	Green

The elements present in **Trico.11®** - a hair loss supplement developed and commercialized in Abruzzo (Italy) - are traditionally known for protecting cells from oxidative stress and to increase the wellbeing of hair [18]. Furthermore, the concentration of each nutrient fits with the quantities found in the European DRIs.

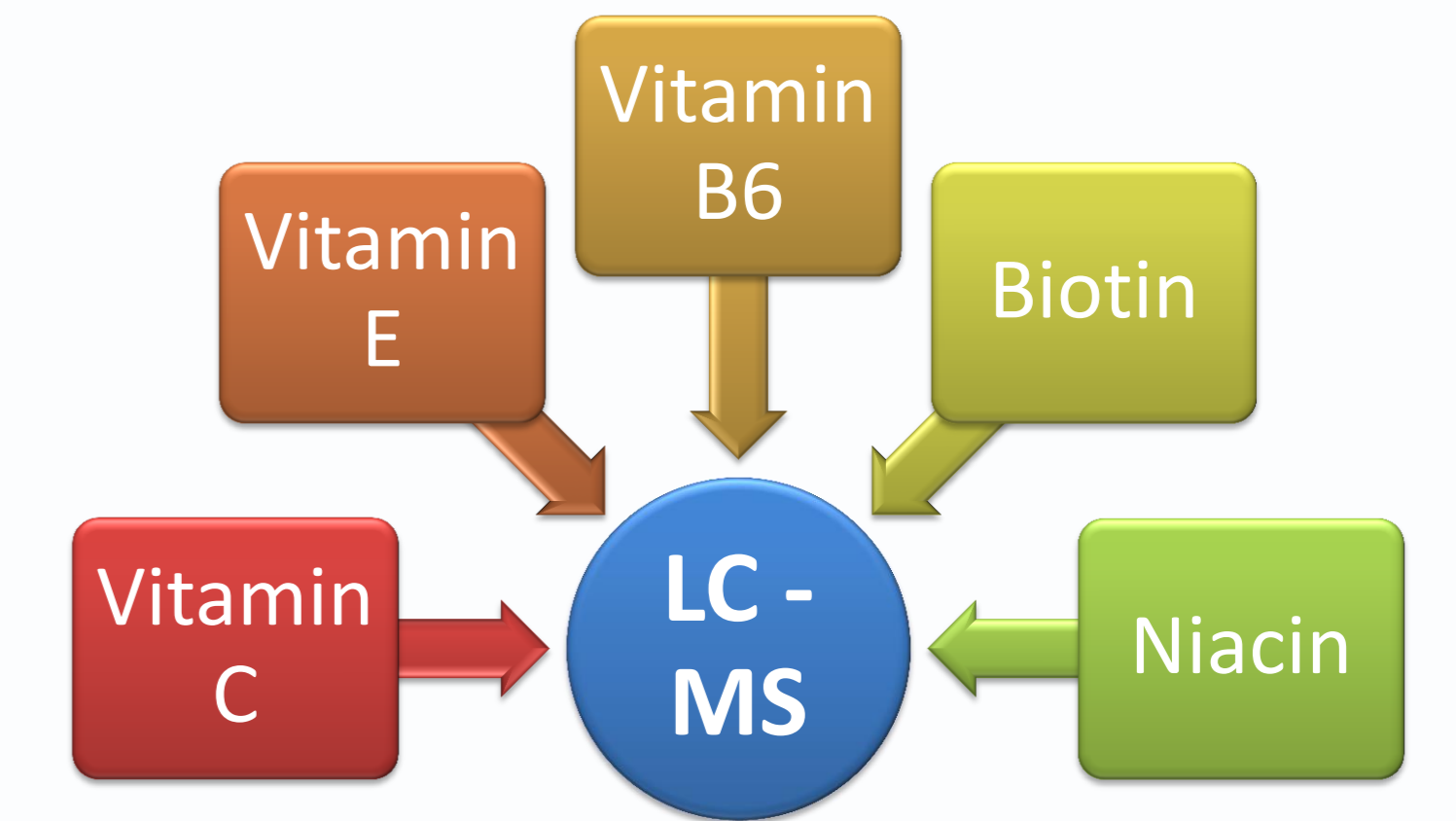
Analytical detection methods



Inductively coupled plasma-mass spectrometry (ICP-MS) is applicable to the determination of sub-µg/L concentrations of a large number of elements in water samples and in solid extracts or digests. This is achieved by ionizing the sample with inductively coupled plasma and then using a mass spectrometer to separate and quantify those ions.



Analytical method based on liquid chromatography (LC) coupled with electrochemical detection (EC) previous derivatization of the amino acids.



Analytical method based on liquid chromatography (LC) coupled to mass spectrometry detection (MS) which allows to detect a wide range of organic compounds.

Trico.11® composition formula

Zinc, **Vit B5**, **Iron**

Contribute to the correct functioning of enzymatic and metabolic processes

Vitamin C, **Selenium**, **Vitamin E**

Antioxidant activity to contrast free radicals and oxidative stress

Vitamin B6

It contributes to the normal synthesis of Cysteine, improving its benefic action.

Cysteine & Methionine

- Cysteine is important for keratinization processes. It is also present in abundant concentrations into the external layer of hair cuticle.
- Methionine is a source of sulfur, essential to sustain the integrity of hair, nails and skin.
- Both are able to promote the hair structuration.

Millet dry extract

- It is recognized to have properties that promote the well-being of hair and nails. Because of its high silicon content, it has a complex nutritional action on the structure of hair (for the prevention and care of hair loss), nails and skin.

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