ABC, a patented innovation in the infusion of teas and herbal plants: enrichment of 
Camellia sinensis leaves with dry extracts from herbal plants

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Abstract: Tea and herbal infusions have been known for millennia for their health benefits. However for plants and active ingredients (of mineral and animal origin), it is necessary to consume very large quantities to achieve what is called the health claim dose, i.e., the dose for which the effect on health claim is established. Camellia sinensis leaves is traditionally used as plant infusion. This article aims to review the innovation afforded by the ABC (Bio Concentrate Assets®) patent. The ABC patent has developed an exclusive method of enriching organic tea leaves with organic herbal dry plant extracts using organic acacia gum. This method allows the coupling of concentrated dry extracts from medicinal plants on the Camellia sinensis leave extracts using acacia gum (arabic gum) and to reach to low enough health claim doses thanks to a higher concentration of active ingredients (tested until 10 ingredients). An example of ABC application is provided in a brief overview of manufacturing process for the “Gingo® tea” preparation. The main advantages of the ABC patent application are discussed. In conclusion, the ABC process offers a real breakthrough in the market of teas and herbal teas for health and wellness.

Key words: Medicinal plants patent; Camellia sinensis; Herbal tea; Nutrition; Health care.

Introduction

Tea (Camellia sinensis) is the second most widely consumed beverage in the world after water and it is traditional medicine from China. Tea (Camellia sinensis) and herbal infusions have been used for millennia as ethnological uses. However for plants and active ingredients (mineral, animal), very large quantities are often necessary to achieve a health claim dose, i.e the dose for which the beneficial effect on health claim could be evidenced. In the past encapsulation for tea has been used to improve the flavour of the tea beverages and the bioavailability of bioactive polyphenols (1). Synergistic of the herbal plant extracts is required (2) but is limited in herbal plant infusions. Arabic gum is a good example of food-grade (E414 as food additive in Europe) reported as a food hydrocolloid for encapsulation systems (3, 4). This article is aimed to review the innovation afforded by the ABC (Bio Concentrate Assets®) patent. The ABC patent has developed an exclusive method using arabic or acacia gum of enriching Camellia sinensis leaves for infusion uses. This method allows the coupling of concentrated dry extracts of medicinal plants with the acacia gum on the tea leaves reaching a higher concentration of active ingredients in the final infusion. A brief overview of the developed process for mixed herbal plant extract infusions is provided. Advantages of the ABC process are discussed. In conclusion, the ABC process offers many advantages and offers a real breakthrough in the teas and herbal teas market for health and well-being.
Advantages of the ABC process

This method brings several advances: the mixture produced is very homogeneous, no loss of material is observed on the walls of the mixers. Indeed, the active agents are coupled uniformly on the leaves and only on tea leaves or herbal tea plants. Following the method disclosed in the invention, no formation of agglomerates of active principles detrimental to the appearance or losses on the walls of the mixer were observed. The amount of water necessary for the adsorption of the active agents on the sheets is reduced. Since the evaporation of ethanol is faster than that of water (boiling point of 78.4 °C vs 100 °C), the drying time is significantly reduced during final stage of drying. As a result, the method according to the invention is more economical in time and energy. Acacia gum also has the advantage of being used in small quantities because its coupling power is high. In addition, its glycemic index is low. Finally, the acacia gum used comes from organic farming to offer 100% organic teas and herbal teas. This process can be used as a delivery system of one or more than 10 active(s) principle(s), including herbal teas or teas obtained by the implementation of the process. A further advantage of the process is that there are no residual traces of alcohol after drying and that the flavour and aroma features of the products are not affected by the use of ethanol in other processes.

Possible applications of the ABC process

In a previous study using cultured cells, we have demonstrated in vitro the safety of the herbal tea plant extract containing Hawthorn (Crataegus oxyacantha), Melissa (Melissa officinalis) and Tilia (Tilia europaea) in ratios traditionally used for insomnia and anxiety treatments (5). We obtained evidence for a protective dose dependent effect of the herbal tea plant extracts when used as a preventive method to protect kidney against hypoxia/reoxygenation injuries. The ABC process could improve the quantity of constituent of the infusion and permits to test more combination of different herbal plant extract (5). Among the new applications it will be of interest to explore its application in antioxidative stress injuries induced as we have previously done with other herbal remedies (Ginkgo biloba, Desmodium adsendens, Camellia sinensis) (6-9).

Conclusion

The ABC process has many advantages and offers a real breakthrough in the teas and infusions already in the market for health and wellness. Specifically, active

<table>
<thead>
<tr>
<th>DENOMINATION</th>
<th>Ingredient quantity (in mg)/ infusion bag (TOTAL : 2000 mg)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organic Green Tea</td>
<td>490</td>
<td>24.50</td>
</tr>
<tr>
<td>Organic Hibiscus</td>
<td>370</td>
<td>18.50</td>
</tr>
<tr>
<td>Organic Ginkgo</td>
<td>394</td>
<td>19.70</td>
</tr>
<tr>
<td>Organic Verbena</td>
<td>100</td>
<td>5</td>
</tr>
<tr>
<td>Organic Red Vine Dry Extract</td>
<td>200</td>
<td>10</td>
</tr>
<tr>
<td>Organic Elderberry Dry Extract</td>
<td>40</td>
<td>2</td>
</tr>
<tr>
<td>Organic Lemon grass</td>
<td>400</td>
<td>20</td>
</tr>
<tr>
<td>Organic Acacia Gum</td>
<td>6</td>
<td>0.30</td>
</tr>
</tbody>
</table>
A patent for herbal tea and Camellia sinensis infusions.

References


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Author Contributions

The authors’ responsibilities were as follows: All authors participated in the writing and take responsibility for the content of this report.