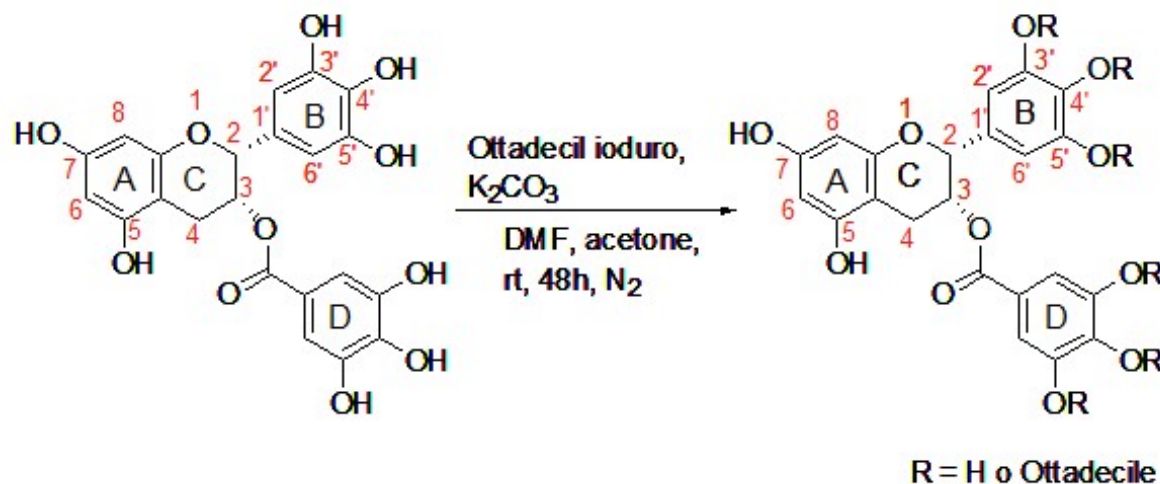


# LIPOPHYLIC ANTIOXIDANT GREEN TEA DERIVATIVE WITH HIGH CELLULAR ABSORPTION RATE



**PRIORITY NUMBER:**

102019000019190

**KEYWORDS:**

Health  
Epigallocatechin Gallate  
Lipophilic ether derivate  
Antioxidant  
Alkylation



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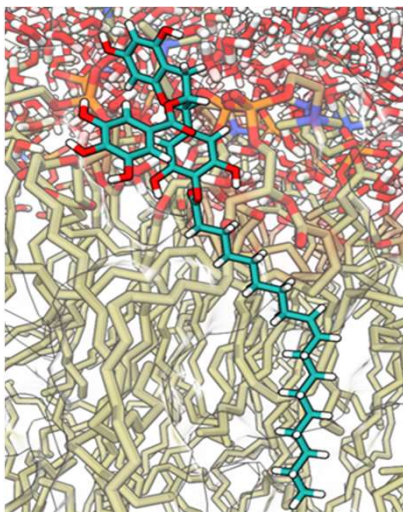
Epigallocatechin Gallate (EGCG) is a natural catechin useful in radical species inhibition. However, EGCG molecular structure is very much polarized, and this brings to a limited usability in many applications. Some solutions to this problem are already known, but they are very subject to degradation.

The invention relates to an EGCG derivate which is able to efficiently interact with lipidic systems and to maximize the antioxidant effect in cells.



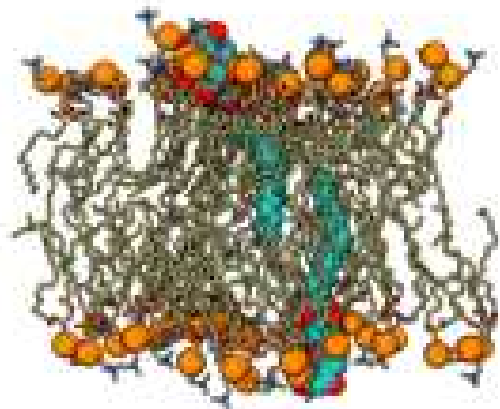
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## DESCRIPTION:

EGCG alkylation with a 18 carbon atoms chain leads to a molecule (EGCG-C18) which has same antioxidant behavior and bigger lipophilicity of natural catechin. Thus, the molecule has improved bio-efficiency, improving cellular absorption. EGCG-C18 structure allows the antioxidant to be efficiently embodied into lipidic carriers where EGCG could be embodied only in part. As a consequence, antioxidant can be more efficiently brought into cells. At this regard, the hydrocarbon chain introduced determines for the C18-EGCG an affinity factor for a standard phosphatidylcholine lipid bilayer of 0.76 ( $R^2 = 0.98$ ) which is more than twice that of EGCG (0.35,  $R^2 = 0.93$ ). Studies on retinal cells ARPE19 demonstrates EGCG-C18 has a  $IC_{50}$  value of 222,1  $\mu M$  (EGCG 312,3  $\mu M$ ). In addition, EGCG-C18 protects ARPE19 cells from  $H_2O_2$  oxidative stress better than EGCG.



## ADVANTAGES:

- Increased molecular lipophilicity without antioxidant behaviour reduction, with respect to natural catechin
- Increased molecular stability, with respect to ester bond

## APPLICATIONS:

- Clinics and Hospitals
- Pharmaceutical Companies
- Cosmetics and Make-up Companies