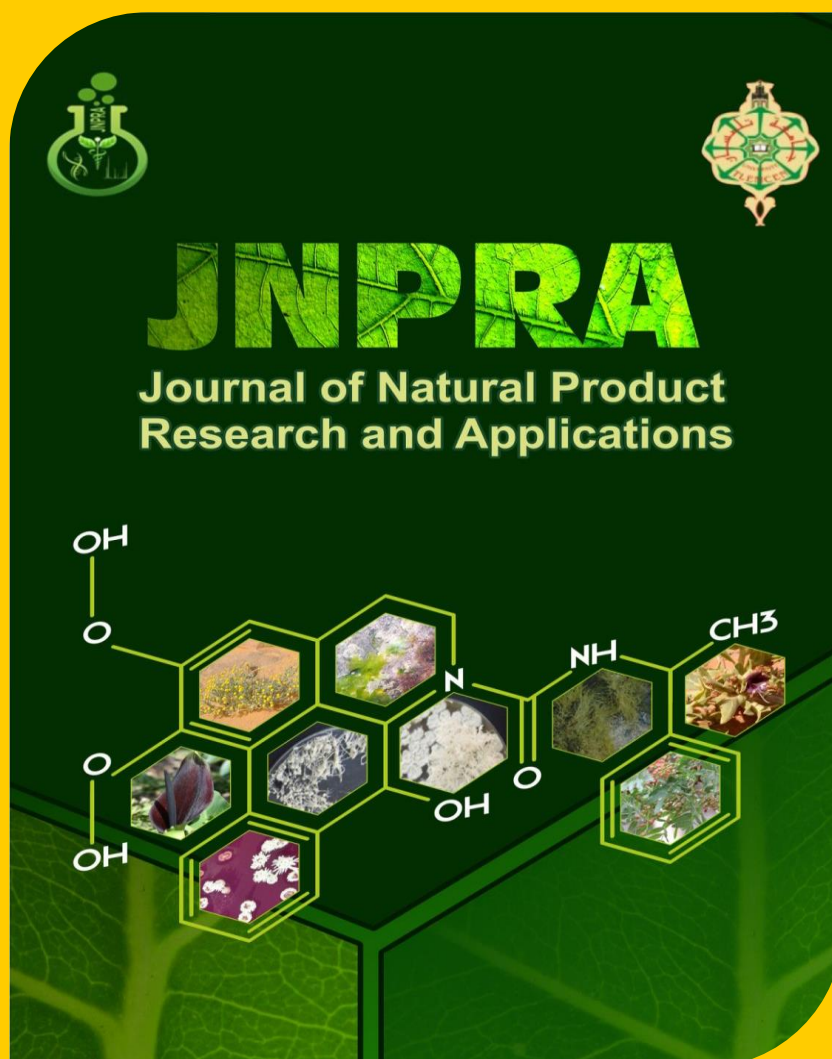
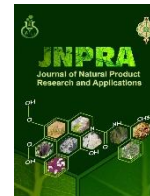


# Applications of essential oils in medical field: progression of publications in PubMed database

**Benameur NEHAR**

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## Applications of essential oils in medical field: progression of publications in PubMed database

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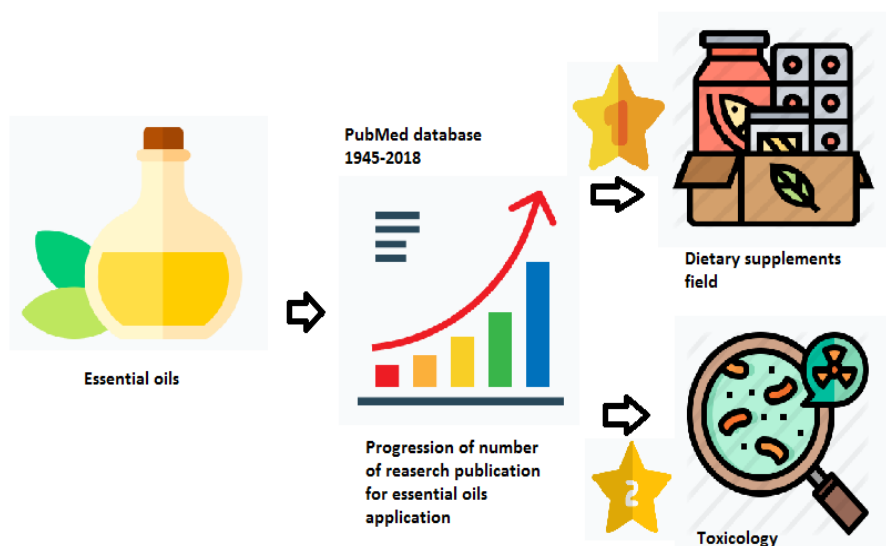
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### Highlights

- Scientific publications about essential oils in medical field are in progression.
- The evolution of research publications on essential oils in medical field.
- Use of PubMed database as tool for publication analysis.
- Essential oils for dietary supplements is the most studied field.
- Essential oils for food supplements are the most studied area.

### Graphical Abstract



## Abstract

The research and the application of natural substances such as essential oils in medical field knew a progression around the world. The purpose of our work is to study the evolution of research publications on essential oils in the medical field. This study is conducted by using the PubMed database in a period from 1945 to 2018. Our results show a number of 12619 worldwide publications on essential oils in the medical field since 1945, the number of which began with a dozen of publications and reached a peak of 819 publications in 2016. The sub domains concern 6905 in dietary supplements, 4775 in toxicology, 1796 in veterinary science, 1629 publications in the field of cancer, 39 on AIDS. 4536 bearing on the animal species and 3095 on the human species. The majority of these publications are journal articles. Overall, we counted 101 publications in Tunisia, 85 in Turkey, 54 in Algeria; 51 in Egypt; 39 in Morocco, 37 in Spain, 31 in France and 12 in Germany. In Algeria, publications based on PubMed were started in 2008 with 24 publications in the last five years.

**Key words:** Essential oils; Medecine; Publications; PubMed.

## 1. Introduction

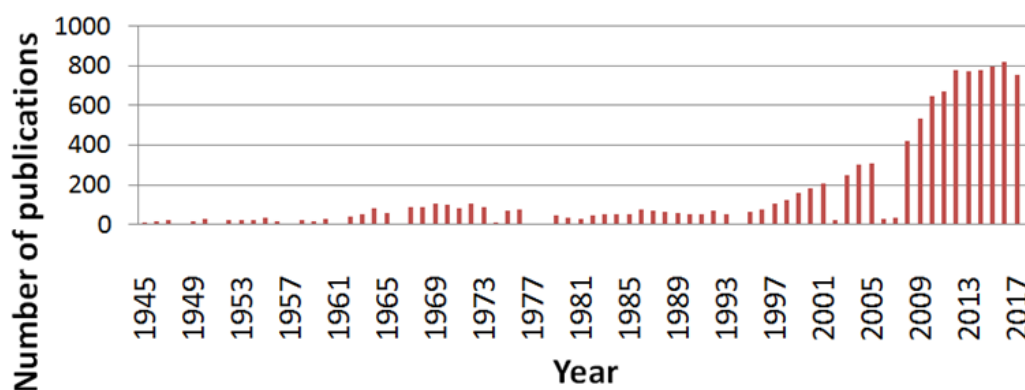
In the field of medicine, the National Library of Medicine (NLM) in the United States introduced the first interactive searchable database (Medline) in 1971 (NLM, 2018) and subsequently in 1996 added the “Old Medline” database with coverage of publications between 1950 and 1965. In 1997, PubMed (a combination of both Old Medline and Medline) was launched to the Internet by NLM and has become the most popular and one of the most reliable WWW resources for clinicians and researchers. PubMed focuses mainly on medicine and biomedical sciences, PubMed allows the larger number of keywords per search but is the only database of the four that does not provide citation analysis. PubMed was developed by the NLM, a division of the National Institutes of Health, and rapidly became synonymous with medical literature research worldwide. Offers a quick free search with numerous keywords as well as limited searching with various criteria [i.e., search by authors, journal, date of publication, date of addition to PubMed, or type of article]. The results of a search can be displayed in a listing including from 5–500 items per page (Falagas et al., 2008). We are using this database to show evolution of research publications on essential oils in the medical field.

## 2. Methods

We searched the official home pages of PubMed to identify and extract information regarding the various characteristics of these databases. In the advanced search bar we request for keywords in relation with the field of medicine and essential oils to determine all the publications from 1945 to 2018. The results are reviewed and diagrammed by categories of field and some countries such Algeria, Tunisia, Morocco, Egypt, France, Spain, Turkey and Germany.

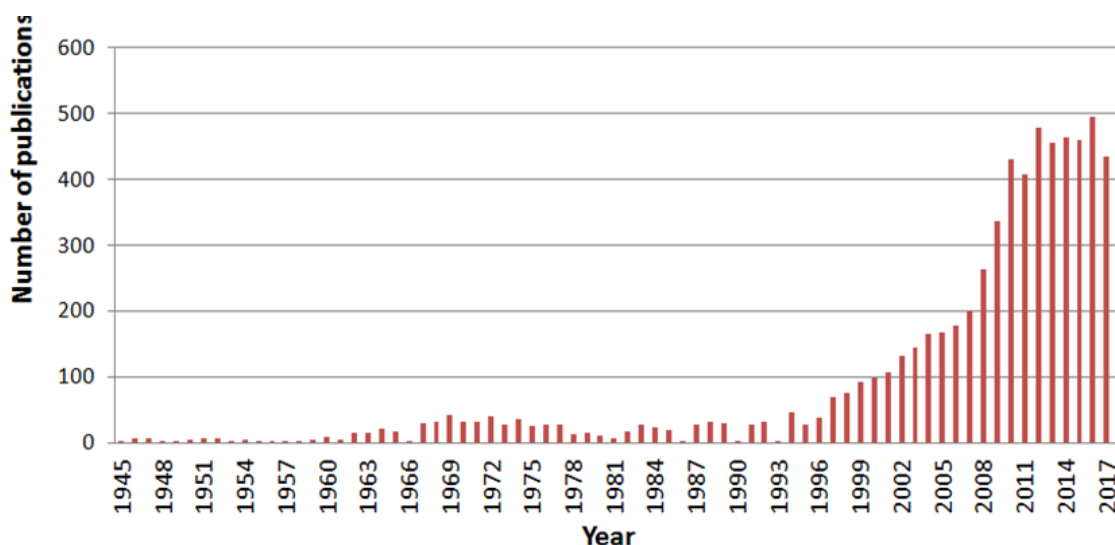
## 3. Results and discussion

Our results show a progression of the number of publications (Figure 1), all publications are come from PubMed databases. The studied period was from 1945 to 2018. The total number of publications since 1945 in the field of essential oils applied in medical domain reaches 12619 publications.



**Figure 1.** Trend of progression of global publication from 1945 to 2018 (total = 12619)

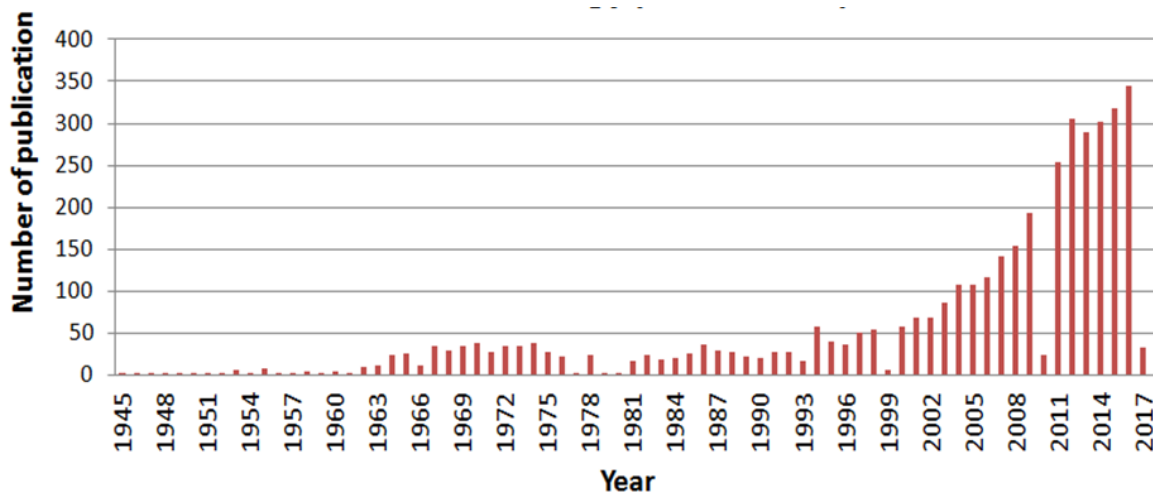
As shown in [Figure 1](#), the progression starts with a few number of publication from 1945 to 2000, after that it knows a speed progression maybe because the process of publication in this period become more flexible with the open access journals and the use of internet. PubMed database allows us to get more information about the sub domains as shown in [Figure 2-6](#). For example the progression of the number of publications in the field of dietary supplements which the total number reach 6905 publications ([Figure 2](#)).



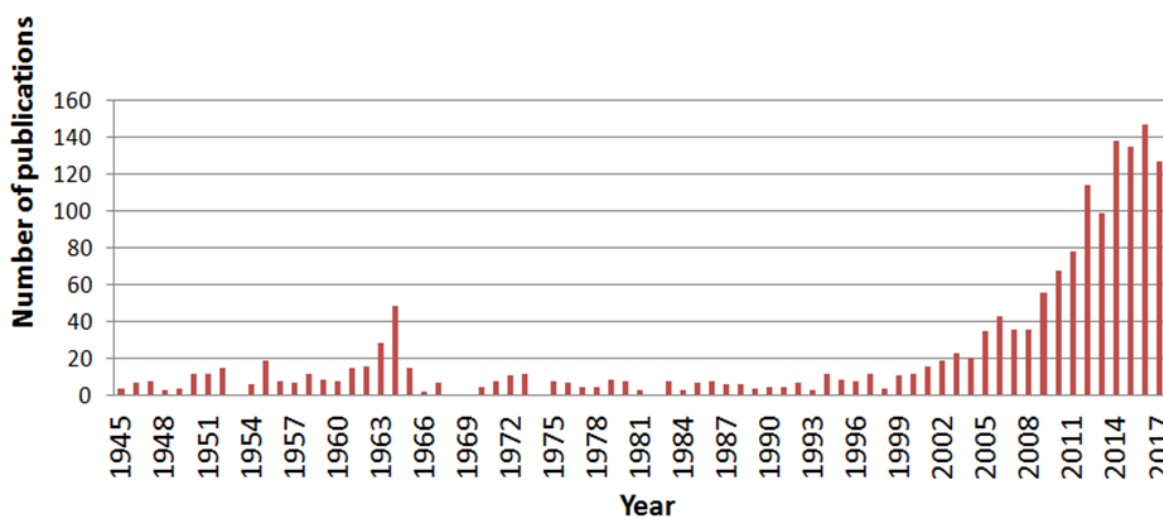
**Figure 2.** Trend of progression of publications in the field of dietary supplements (total =6905)

The progression starts from a few number of publication until year 2000 then it trace the same target as the curve [Figure 1](#) but the dietary supplements is the most considered for the subjects of study of essential oils maybe for the benefit of the oils for the human and animal organisms such the use as a supplements for the alimentation. In the second rank, we can observe the importance of the toxicology and veterinary science; the curves ([Figures 3 and 4](#)) show also the same progression of the number of publications which reach a total of 4575 and 1796 publications. The use of essential oils seems in progression in these two domains because the success of the results of essential oil applied in toxicology and cancer as antifungal and antibac-

terial also for antitumor actions (Smith-Palmer, 1998; Hammer, 1999; Burt, 2004; Carnesechi, 2001; Zu, 2010). In addition, we note 39 publications on AIDS. 4536 bearing on the animal species and 3095 on the human species. The majority of these publications are journal articles.

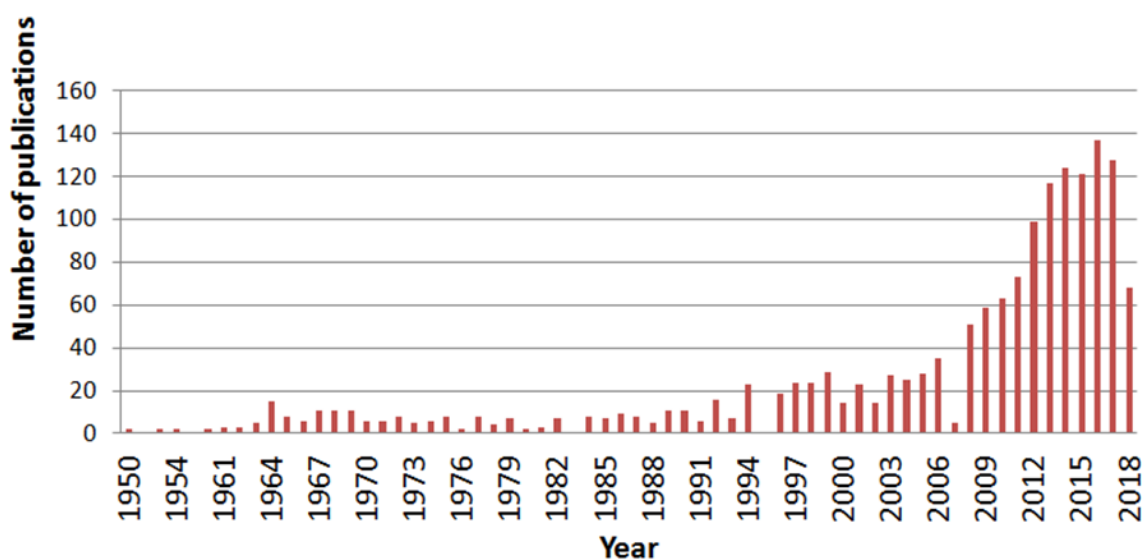


**Figure 3.** Trend of progression of publications in toxicology field (total =4575).



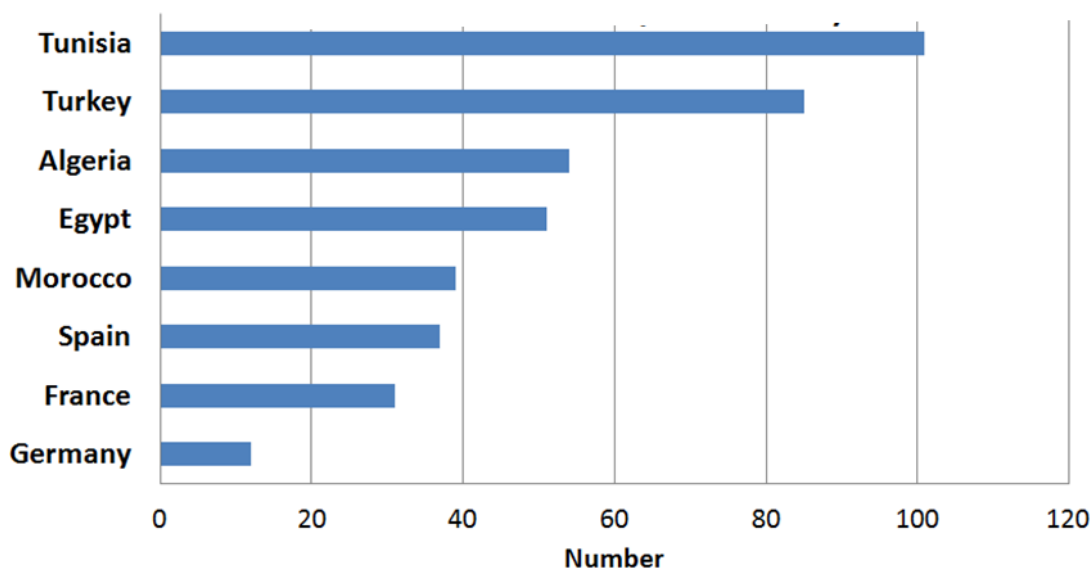
**Figure 4.** Trend of progression of publications in veterinary science field (total =1769).

Concerning the publication from our country (Algeria) in comparison with its neighbors like Morocco and Tunisia, in Figure 6 we can observe that Algeria is ranked in the 3rd place with 54 publications from PubMed databases in the field of essential oils applied in medical domain.



**Figure 5.** Trend of progression of publications in cancer field (total =1629)

The [Figure 6](#) demonstrates that Tunisia is ranked with 101 publications and Turkey second with 85 publications.



**Figure 6.** Some countries with correspondent number of PubMed publications in the field of essential oils applied in medical science (from 1945 to 2018).

#### 4. Conclusion

This study is conducted by using the PubMed database in a period from 1945 to 2018. Our results show a number of 12619 worldwide publications on essential oils in the medical field since 1945, the number of which began with a dozen of publications and reached a peak of 819 publications in 2016. The sub domains concern 6905 in dietary supplements, 4775 in toxicology, 1796 in veterinary science, 1629 publications in the field of cancer, 39 on AIDS.

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