

# Further Research on the Yeasts of *Eucalyptus*

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Continuing the research undertaken in 1959 on the blastomycetic microflora of the *Eucalyptus* flowers, we have taken into consideration other species of this important forest plant that had not been considered before.

Also in this second part of the research we have used the same methods of isolation, culture and determination.

The isolation was limited to flowers picked up in Lazio, in contrast with the first that was extended to the *Eucalyptus* of Sicily and Sardinia. We preferred this limitation in order to extend the investigation to more species of *Eucalyptus* and collect a series of data sufficiently representative of a determined zone.

The species of *Eucalyptus* taken into consideration are the following: *Eucalyptus leucoxylo*n, *E. camaldulensis*, *E. trarbuti*, *E. polypnea*, *E. maideni*, *E. paulistana* and *E. globulus*.

However, many yeasts have also been isolated even from species that did not have a sure systematic relation.

The isolations carried out in this second series of research, provided 102 stocks in the whole, and led to the determination of the following species :

— *Candida guilliermondii* (Cast.) Langeron et Guerra, 29 stocks equal to 28 %. Isolated from *E. leucoxylo*n, *E. paulistana*, *E. globulus* and *Eucalyptus* sp.

— *Candida guilliermondii* var. *membranefaciens* (Cast.) Langeron et Guerra. 17 stocks equal to 14 %. Isolated from *E. leucoxylo*n, *E. paulistana* and from *Eucalyptus* sp.

— *Candida tropicalis* (Cast.) Berkhout. 1 stock equal to 0,9 %. Isolated from *E. camaldulensis*.

— *Candida Krusei* (Cast.) Berkhout. 1 stock equal to 0,9 %. Isolated from *E. paulistana*.

— *Candida parapsilosis* (Ashf.) Langeron et Talice var. *intermedia*. 3 stocks equal to 3 %. Isolated from *E. paulistana*.

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— *Candida pulcherrima* (Lindned) Windish. 4 stocks equal to 4 %. Isolated from *E. globulus* and *Eucalyptus* sp.

— *Kloeckera magna* (De Rossi) Janke. 16 stocks equal to 15 %. Isolated from *E. trabutii*, *E. populnea*, *E. paulistana*.

— *Kloeckera apiculata* (Ress emend. Klocker) Janke. 11 stocks equal to 11 %. Isolated from *E. trabutii*, *E. paulistana* and from *Eucalyptus* sp.

— *Kloeckera jensenii* (Kloecker) Janke. 1 stock equal to 0,9 %. Isolated from *E. globulus*.

— Yeast L. This designated latter indicates a stock that at first was thought to have been related to the *Lypomices* kind because of some morphological characteristics. The systematic position of this yeast is still uncertain, because it also presents some analogies with *Candida pulcherrima* as had already been noticed in the first contribution, but it cannot be superimposed perfectly over this one. However, 27 stocks have been isolated equal to 26 %. It was present in the following: *E. leucoxyton*, *E. maideni*, *E. paulistana*, *E. globulus* and *Eucalyptus* sp.

— *Pullularia pullulans* (De Bary) Berkhout. 8 stocks equal to 8 %. Isolated from *Eucalyptus* sp.

In the flowers of all the *Eucalyptus* species that were considered yeasts were always present. Their presence is related to the dimension of the flowers, that is to the *Eucalyptus* species. They can be easily found in the big flowers, such as the *Eucalyptus globulus*, *E. leucoxyton*, etc., on the other hand they become rather scarce in the species of the little flowers such as *E. camaldulensis*.

You can notice almost the total absence of species with spores formation. In fact in the first contribution only one *Saccaromices* and one *Debaryomices* were isolated. On the contrary the species without spores formation are more frequent and among these are *Kloeckera apiculata* and *magna*, *Candida guilliermondii* and yeast L.

Regarding the reason for yeasts being in the *Eucalyptus* flowers, we think that their presence is completely accidental.

Considering the great number of *Eucalyptus* species that, under the described point of view must still be examined, we deem advisable to continue the investigation that we have undertaken in this respect. And also it must be established if a specialization really exists between microbial forms and *Eucalyptus* species, as it was supposed to be in the first contribution and that up to now we are not yet able to determine.

## NOUVELLES RECHERCHES SUR LES LEVURES DE L'EUCALYPTUS

## Résumé

Les levures se trouvant dans les fleurs de certaines espèces d'*Eucalyptus* ont fait l'objet de nouvelles recherches. Les espèces suivantes ont été isolées : *Candida guilliermondii* (Cast.) Lang. et Guerra (29 %), *Candida guill.* var. *membranaefaciens* (Cast.) Lang. et Guerra (14 %), *Candida tropicalis* (Cast.) Berkh. (0,9 %), *Candida krusei* (Cast.) Berkh. (0,9 %), *Candida parapsilosis* (Ashf.) aLng. ee Talica var. *intermedia* (3 %), *Candida pulcherrima* (Lindner) Windish (4 %), *Kloeckera magna* (De Rossi) Janke (15 %), *Kloeckera apiculata* (Rees. emend. Klöcker) Janke (11 %), *Kloeckera jansenii* (Klöcker) Janke (0,9 %), *Kloeckera africana* (Klöcker) Janke (0,9 %), Yeast L. (26 %), *Pullularie pullulans* (De Bary) Berkout (8 %).

Les formes asporigènes sont prédominante.

## ÚLTIMAS PESQUISAS SOBRE EL FERMENTO DEL EUCALIPTO

## Resumen

Se ha estudiado nuevamente el fermento presente en las flores de algunas especies de Eucaliptos. Fueron aisladas las siguientes especies : *Candida guilliermondii* (Cast.) Lang. et Guerra (29 %), *Candida guill.* var. *membranaefaciens* (Cast.) Lang. et Guerra (14 %), *Candida tropicalis* (Cast.) Berkh. (0,9 %), *Candida krusei* (Cast.) Berkh. (0,9 %), *Candida parapsilosis* (Ashf.) Lang. et Talica var. *intermedia* (3 %) *Candida pulcherrima* (Lindner) Windisch (4 %), *Kloeckera magna* (De Rossi) Janke (15 %), *Kloeckera apiculata* (Rees. emend. Klöcker) Janke (11 %), *Kloeckera jansenii* (Klöcker) Janke (0,9 %), *Kloeckera africana* (Klöcker) Janke (0,9 %), Yeast L. (26 %), *Pullularie pullulans* (De Bary) Berkout (8 %).

Fueron encontradas formas asporigenas.

## PESQUISAS ADICIONAIS SÓBRE OS LEVEDOS DE EUCALIPTO

## Sumário

O levedo presente nas flores de algumas espécies de Eucalpto merecem consideração adicional. Foram isoladas as seguintes espécies : *Candida guilliermondii* (Cast.) Lang et Guerra (29 %), *Candida guill.* var. *membranaefaciens* (Cast.) Lang et Guerra (14 %), *Candida tropicalis* (Cast.) Berkh. (0,9 %), *Candida krusei* (Cast.) Berkh. (0,9 %), *Candida parapsilosis* (Ashf.) Lang. et Talica var. *intermedia* (3 %), *Candida pulcherrima* (Lindner) Windisch (4 %), *Kloeckera magna* (De Rossi) Janke (15 %), *Kloeckera apiculata* (Rees. emend. Klöcker) Janke (11 %), *Kloeckera jansonii* (Klöcker) Janke (0,9 %), *Kloeckera africana* (Klöcker) Janke (0,9 %), Yeast L. (26 %), *Pullularie pullulans* (De Bary) Berkout (8 %).

Descobriu-se que formas asporigenas predominam.