

September 2017

## Rise and shine 適時冒起

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### Recommended Citation

Cunningham, Hetty and Duffell, Rachel (2017) "Rise and shine 適時冒起," *AMBROSIA 客道 : The Magazine of The International Culinary Institute* , 10-11.

Available at: <http://repository.vtc.edu.hk/ive-hosts-ambrosia/vol4/iss1/10>

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# Rise and shine

## 適時冒起

Coming from the fungus kingdom, yeast has been used for its transformative effect in foods and beverages since the days of ancient Egypt. Through the process of fermentation, it gives rise to bread, wine and so much more.

酵母屬於真菌界成員，早在古埃及年代，已被用來「改造」食物和飲品，製作麵包、葡萄酒和很多的食物和飲品都要經過發酵的過程

By Hetty Cunningham & Rachel Duffell



### 1 Bread and Buns 麵包和包點

Probably the most common use of the ingredient. A strain of baker's yeast, variously found as fresh yeast, dry active yeast or instant yeast, finds its way into breads around the world, and the biochemical reaction of such yeast on sugar produces carbon dioxide during the fermentation process, allowing a dense mass of dough to result in a well-risen loaf. Leavened bread, in one form or another, is central to many cuisines of the world, from the crusty loaves of European tradition to the soft buns of East Asia.

In Hong Kong, for example, the making of Cantonese dim sum buns employs yeast. "The process of fermentation for buns can effectively aid digestion, with nutrients easily absorbed by the body," says chef Chan Chun-hung, chief instructor at the Chinese Culinary Institute. "The process also gives the buns an attractive appearance, as well as a palatable flavour. Dim sum chefs begin by kneading the bun dough with the yeast. The metabolism during yeast fermentation yields carbon dioxide, and the gases contained in the molecules give rise to the fluffy texture of the dough."

The fermentation process also produces alcohol, and the special aroma that comes from the crusts of steamed buns, such as barbecued pork buns and custard buns, has a hint of alcohol. Yeast is also used in more cake-like Cantonese treats such as steamed white sugar cake and sponge cake.

酵母菌最常用於製作麵包上。世界各地麵包師傅常用的酵母菌，包括新鮮酵母、活性乾酵母或速發酵母。當酵母遇上食糖就會產生生化反應，過程中產生的二氧化碳會令厚實的麵糰膨脹起來，變得鬆軟。經過發酵的麵包，雖然千姿百態，但都是不同菜系中的主要食品，如歐洲傳統的硬皮麵包，以至東亞地區香軟的包子。

在香港，廣東點心中的包點也採用酵母菌發酵。中華廚藝學院總導師陳俊雄師傅表示：「經過發酵的包點能幫助消化，食物中的營養更容易被人體吸收。發酵過程不但令到成品的外型更美觀，也能提升味道和口感。點心師傅每天都會搓麵糰及加入酵母菌讓麵糰發酵。酵母進行新陳代謝時釋出的二氧化碳，會被鎖在麵糰的分子之間，因而使麵糰變得鬆軟。」

發酵過程亦會產生酒精，因此叉燒包、奶皇包等包點的包皮隱隱帶有少許酒精的香氣。酵母亦可用來製作廣東糕點，如白糖糕和馬拉糕等。



### 2 Kombucha 康普茶

Kombucha is produced by combining sweetened tea with scoby (a symbiotic culture of bacteria and yeast) and leaving it in the dark for several weeks. Some claim that kombucha has a positive impact on the human immune system and gut bacteria. Having been quietly consumed in Russia and China for centuries, it is now experiencing something of a revival.

康普茶是在加了糖的茶中，放入一種由細菌和酵母培養的菌膜，然後放在陰暗的地方發酵數星期而成。這種俄羅斯和中國人幾百年來一直靜靜地飲用的茶，近年由於有人說它對人體的免疫系統和腸道細菌均有裨益而開始流行起來。



### 3 Beer 啤酒

Yeast plays a key role in beer brewing. When brewer's yeast is added to a starch solution of grains (often barley), it consumes sugars, producing alcohol, which gives beer its buzz, and carbon dioxide, that lends it fizz. Ale uses yeast strains that operate better at warmer temperatures, producing a drink with a fruitier, spicier aroma. Lager develops from yeast that prefers cooler temperatures, and the beverage is conditioned or celled before it is drinkable.

酵母在啤酒釀造中扮演重要角色。將啤酒酵母菌加入穀物（通常是大麥）的澱粉溶液中，當溶液的糖分被酵母消耗後，會產生酒精和二氧化碳，也就是啤酒味道和氣泡的來源。艾爾啤酒採用適合在暖環境下進行發酵的酵母菌株釀造，果香及香料味道濃郁。拉格啤酒則採用在清涼環境下發揮得更好的酵母，飲用前需要存放在清涼的環境或酒窖中。



### 4 Sake 清酒

Japanese rice wine, or sake, is created when polished, steamed rice is left to ferment. First, *koji* (mould) converts rice starch to sugar, then *kobo* (yeast) converts the sugars into alcohol. There are many different yeast strains that can be used – some common and made available to all by the Central Brewers Union, others cultivated, tested and adopted by individual breweries. Each yeast influences the final aroma and flavour of the rice wine, contributing to the huge diversity in sake.

清酒是將經過碾磨的日本大米蒸熟後進行發酵而成，首先加入米麴將飯裡的澱粉質轉化成糖分，然後由酵母將糖分轉化成酒精。釀造清酒的酵母菌株種類很多，一般可在日本釀造協會購買，但部分酒廠會自行培養。不同酵母釀造的清酒，味道和香氣各有不同，變化非常豐富。



### 5 Chocolate 朱古力

Yeast isn't the first thing that springs to mind when we think of chocolate, but it is used in making some of the finest confectionery. During harvest, farmers break open cocoa fruit and allow the pulp to ferment for several days before extracting the seeds that will be turned into chocolate. Yeast causes this fermentation, and it is the diversity of yeast strains that contributes various flavours and aromas to the resulting chocolate.

想到朱古力不會即時想起酵母菌，但一些頂級朱古力的製作過程會用上酵母菌。在採收可可豆時，農夫會剝開可可的果實，讓果肉發酵數天，然後才取出可製成朱古力的種子。發酵由酵母菌引起，不同的酵母菌株可為朱古力帶來不同的味道和香氣。



### 6 Coffee 咖啡

Coffee producers often allow coffee beans to ferment in the presence of yeast. This can take place before or after the removal of the beans from coffee cherries. This additional step in the coffee-making process adds complexity to resulting brews.

咖啡製造商從咖啡果實中取出咖啡豆之前或之後，通常都會讓咖啡豆在充滿酵母菌的環境中發酵。這個步驟可以讓咖啡的味道更複雜。



### 7 Wine 葡萄酒

Yeast is naturally found on the skins of grapes and other fruits. Such fruits (though usually grapes in practice) can easily be turned into wines, though additional yeasts are often included in the fermentation process. The yeast is used to convert sugars found naturally in the fruits into alcohol and carbon dioxide.

葡萄及其他水果的皮上都有天然的酵母菌，這些水果（通常都是指葡萄）很容易變成酒，不過在發酵的過程中有時需要加入額外的酵母菌。酵母菌是用來把水果內的糖分轉化為酒精和二氧化碳。



### 8 Nutritional Yeast 營養酵母

Nutritional yeast is a deactivated or dried-out form of the yeast that bakers use to leaven bread, but which is often used as a vegan substitute for cheese. Its taste is savoury (nutty and cheesy), and it is commonly used in salads, pasta dishes and with roasted vegetables. Nutritional yeast is a good source of protein for vegans.

烘焙師用來發酵麵糰的酵母停止活化或變乾後就成了營養酵母，常作為芝士的素食代替品，鹹中帶果仁和芝士味，通常用於沙律、意式麵食、烤蔬菜上，可為素食者提供豐富的蛋白質。



### 9 Yeast Extract 酵母提取物

Yeast extract is made when yeast's own digestive enzymes break down its proteins. The resulting autolysed yeast cells are heated to complete their destruction, then any cell walls are removed to form yeast extract. It has a savoury, umami taste and is commonly found in Vegemite, Marmite and Maggi sauce.

酵母菌的消化酶在特定環境下會分解自己的蛋白質，稱之為自溶現象。將自溶後的酵母菌加熱，讓酵母菌徹底分解，然後除去當中的細胞壁，剩下的就是酵母提取物。它帶鹹鮮味，可用來製造酵母醬如Vegemite和Marmite，以及美極鮮醬油等。