



**1 White wine and cidre**

**2 Red and fruit wines**

**3 Light beer**

**4 Dark beer**

**5 Tubers and roots**

**6 Beverages from cereals or tubers**

**7 Cereal porridges**

**8 Bread (wheat)**

**9 Bread (wheat and other)**

**10 Soy and beans**

**11 Soy-based condiments**

**12 Vegetable products**

**13 Dairy products**

**14 Acid/heat coagulated cheese**

**15 Rennet coagulated cheese**

**16 Surface ripened cheeses**

**17 Fish**

**18 Meats**

**19 Normandier (F)**

**20 worldwide**

**21 U.K., Trinidad**

**22 U.K., Belgium**

**23 Amazon**

**24 Turkey, Bulgaria**

**25 Ghana**

**26 France**

**27 US and Europe**

**28 Japan**

**29 Thailand (East Asia)**

**30 Europe, South Asia, East Asia**

**31 Sardinia**

**32 Germany**

**33 Holland**

**34 Quebec (CAN)**

**35 Sweden**

**36 Italy, Hungary**

**37 Spain**

**38 Duoro (Portugal)**

**39 Bavaria (D)**

**40 Brazil**

**41 Brazil**

**42 Zimbabwe**

**43 West Africa**

**44 Milano (Italy)**

**45 Sudan**

**46 Indonesia**

**47 Japan**

**48 worldwide**

**49 Scandinavia**

**50 worldwide**

**51 Emmentaler (Swiss)**

**52 Normandie (F)**

**53 Ancient Greece and Rome**

**54 Spain**

**55 Quebec (CAN)**

**56 Germany**

**71 Belgium, Germany**

**72 Germany**

**73 West Africa**

**74 West Africa**

**75 South India**

**76 Reutlingen, D / France**

**77 China**

**78 China**

**79 Korea**

**80 Spain, Greece**

**81 Central Asia**

**82 Italy**

**83 Parma (I)**

**84 Roquefort (F)**

**85 South-East Asia**

**86 Spain**

**87 Japan**

**88 Zhejiang (China)**

**103 Botswana, Zimbabwe**

**104 South America**

**105 Nigeria**

**106 Uganda**

**107 Botswana**

**108 Bay Area (U.S.)**

**109 West phalia, D**

**110 China**

**111 East Asia**

**112 Taiwan**

**113 Caucasus**

**114 Norway**

**115 Italy**

**116 Alsace (F)**

**117 Norway**

**118 Parma (Italy)**

**57 Russia**

**58 Caribbean**

**59 Black Forest (D)**

**60 Zimbabwe**

**61 Normandie (F)**

**62 Cognac (F)**

**63 Italy**

**64 Mexico**

**65 Scotland, Ireland, U.S.A.**

**66 China**

**67 Torres Straight**

**68 Worldwide**

**69 China**

**70 Modena (I)**

**89 China**

**90 Ethiopia**

**91 Indonesia**

**92 tropical countries**

**93 Mexico, Madagascar**

**94 Scandinavia**

**95 Turkey**

**96 Turkey**

**97 Scandinavia**

**98 Mexico**

**99 Mexico**

**100 East Asia**

**101 unknown**

**102 Germany**

**Key to description of fermented foods / Colour code for main groups of fermentation organisms**

Yeasts: number → 109 West phalia, D ← Typical Origin  
 Other organisms: Name → Pumpernickel ← thick border, underlined = back-slopped fermentation  
 Bacilli: Main ingredient → rye F. sanfrancisc. 5.0 Ks. humilis  
 Staphylococci: pH → 0.96 C. mindensis  
 Enterobacteriaceae: aw → 1d L:0.15; A:0.01; G  
 Fungi: Fermentation time → 1d L:0.15; A:0.01; G

Main metabolites:  
 L Lactate (mol / L) 2Ac Diacetyl h: hour m: month  
 A Acetate (mol / L) G Glutamate d: day y: year  
 E Ethanol (%) N,S Ammonia, H2S or dimethylsulfide w week c: century  
 P Propionate (mol / L) Ac Acetaldehyde

**Spirits and vinegar**

**Tea, coffee, chocolate, and non-alcoholic beverages**

### Key to Fermentation Organisms in Food

Lactic acid bacteria		Other Bacteria (Gram positive)		Gram-negative bacteria		Yeasts and Fungi	
Lactobacillaceae	Paucilactobac.: Pu.	Weissella, W.	Bacillus	Bc.	Acetic Acid Bacteria	Yeasts	
Lactobacillus: L.	Limosilactobac.: Lm.	Oenococcus, O.	Lentibacillus	Lt.	Acetobacter	Torulaspora	
Companilactobac.: C	Fructilactobacillus: F.	Enterococcaceae		Brevibacterium	Ac.	Zygosaccharomyces	
Schleiferlactobac.: Sl.	Acetilactobacillus: Ai.	Streptococcaceae		Propionibacterium	Pr.	Mycelial fungi	
Latilactobacillus: Ls.	Lentilactobacillus: Lv.	Lactococcaceae		Staphylococcus	St.	Aspergillus	
Lactocaseibacillus: Lb.	Secundilactobac.: Sn.	Streptococcaceae		Kocuria	Kc.	Geotrichum	
Liquorilactobac.: Lq.	Lentilactobacillus: Ln.	Streptococcaceae		Alkalibacterium	Ak	Monascus	
Pediococcus: Pc.	Periwissella, Pr.	Streptococcaceae		Carnobacteriaceae	Mn	Penicillium	
Lactiplantibacillus: Lp.	Leuconostoc, Lu.	Streptococcaceae		Marinilactobacillus	Mn	Rhizopus	
Oigolactobacillus: Lo.		Streptococcaceae					

Acknowledgements: Dr. Lynn McMullen and Dr. Ying Hu are acknowledged for helpful suggestions

Copyright: This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License to allow sharing, copying and redistribution of the material in any medium or format.

The excel file used to generate the table was adapted from: <http://www.mfbiq.com/documents/Periodic-Table.xls>, which is licensed under a Creative Commons Attribution-Share Alike 3.0 Unported License.