

Brett Does Not Equal Sour

Ok... this is kind of semantics but I think it's important to mention. Brett only beers are not sour and not all sour beers have *Brettanomyces* in them. This is a very common misconception that I hear repeated often. Most people automatically include Brett beers into the sour beer category. Brett doesn't produce the lactic acid bacteria which makes a beer a "true sour". You need combinations of *Lactobacillus*, *Pediococcus*, and *Acetobacter* to make a real sour beer sour though these beers often include some amount of Brett as well.

Brewer's Yeast - *Saccharomyces cerevisiae* (ale yeast) and *S. Pastorianus* (lager yeast)

Type: Yeast - Order Saccharomycetales (Family: Saccharomycetaceae)

Fermentables: Primarily glucose, fructose, sucrose, maltose, and maltotriose (also mannose, galactose, and raffinose. Lager yeast also can ferment melibiose.)

Important products: Ethanol, carbon dioxide, esters, and phenols (POF+ strains – mostly Belgian and Hefeweizen)

Oxygen: Beneficial for growth

Ideal temperature: 45-95F (strain dependent)

Speed: Fast

IBU Tolerance: High

Overall: Brewer's yeast protects the wort and sets the stage for a traditional slow-moving mixed-fermentation duo of Brett and Pedio.

Brett - *Brettanomyces bruxellensis* (aka *B. lambicus*)/*B. anomalus* (aka *B. clausenii*)

Type: Yeast - Order Saccharomycetales (Family: Pichiaceae)

Fermentables: Primarily the same as *Saccharomyces*, but in addition dextrins up to 9-glucose chains. Some strains (beta-glucosidase enzyme positive) are capable of fermenting lactose, cellobiose (wood sugar), and glycosides (from hops, spices, and fruit – which releases aromatics)

Important products: Ethanol, carbon dioxide, esters (create and destroy), phenols (converts what brewer's yeast leaves behind into funkier forms), and tetrahydropyridines (toasty to mousy)

Oxygen: Beneficial for growth, but leads to acetic acid production

Ideal temperature: 58-85F (strain dependent)

Speed: Slow

IBU Tolerance: High

Overall: Works well on its own with a large enough pitch, or in tandem with any of the other microbes listed. Brett doesn't sour the beers you brew, it makes the sour beer you brew delicious. Can do some of its best work without malt carbohydrates available to ferment (especially during bottle conditioning). More fermentables allow the production of more esters, but these fruity flavors are not driving traditional funky "Brett" character.

Lacto - *Lactobacillus delbrueckii*/*L. brevis*/*L. buchneri*/*L. plantarum* etc.

Type: Bacteria – Family Lactobacillaceae

Fermentables: Some species can only ferment relatively simple sugars, while others can ferment dextrins.

Important products: Lactic acid, ethanol, and carbon dioxide

Oxygen: Usually aerotolerant (doesn't use oxygen, but isn't harmed by it)

Ideal temperature: 70-115F (strain dependent)

Speed: Really fast

IBU Tolerance: Low to very low

Overall: Lacto is capable of sour a beer within 24-48 hours if given free reign. However, too much acidity can cause less desirable performance for the microbes that follow. Most strains do not thrive after primary fermentation is complete.

Pedio - *Pediococcus cerevisiae* et al.

Type: Bacteria – Family Lactobacillaceae

Fermentables: Complex sugars, some species are even capable of metabolizing starch.

Important products: Lactic acid, exopolysaccharides (EPS), and diacetyl

Speed: Really slow

Oxygen: Usually microaerophilic (prefers oxygen at lower than atmospheric concentration)

Ideal temperature: 60-80F (strain dependent)

IBU Tolerance: Moderate

Overall: Pedio should be used with Brett in most cases to clean up the EPS and diacetyl. Won't lower the pH as quickly as Lacto, but can reach a lower final pH given enough time and complex carbohydrates.

Brett Strain Guide

<http://www.funkfactorygeuzeria.com/2013/06/brett-strain-guide.html>

Common Name	Species Name	Synonym (Strain) Name	Lab/Package	Flavor/Aroma	Source Note
Anomala	Dekkera anomala	B. intermedius	ECY-04	strong ester profile with some light funk and acidity	beer - Adelaide, Australia
Anomalus	Dekkera anomala	B. anomalus	Wyeast		bottled stout - Burton on Trent, England
Bruxellensis	Dekkera bruxellensis	B. bruxellensis	BSI	Same as White Labs	Pro-Brewers only.
Bruxellensis	Dekkera bruxellensis	B. bruxellensis	WLP650	Barnyard	Not the same as WY's Brux
Bruxellensis	Dekkera bruxellensis	B. bruxellensis	Wyeast 5112	"sweaty horse blanket"	Not the same as WL's Brux
Bruxellensis	Dekkera bruxellensis	B. bruxellensis	ECY-05	funky with barnyard notes accompanied by some fruit	isolated from Belgian stout
Claussenii	Dekkera anomala	B. claussenii	BSI	Same as White Labs	Pro-Brewers only.
Claussenii	Dekkera anomala	B. claussenii	WLP645	Fruity, pineapple	
CMY1	Dekkera bruxellensis	B. bruxellensis CMY1	BSI		Chad Yakobson's mutation of BSI Drie
Custersianus	Dekkera custersiana	B. custersianus	ECY-19	light fruit and hay	Bantu beer brewery, South Africa
Drie	Dekkera bruxellensis	B. drei	BSI	"highly aromatic"	Isolate from Drie Fonteinien; Pro-Brewers only.
Farmhouse	?	B. fantome	ECY-03	fruity and funky profile	Isolate from Fantome
Lambicus	Dekkera bruxellensis	B. lambicus	BSI	Same as White Labs	Pro-Brewers only.
Lambicus	Dekkera bruxellensis	B. lambicus	WLP653	Horsey, Smoky, Spicy	Different from WY's "lambicus"
Lambicus	Dekkera bruxellensis	B. lambicus	Wyeast 5526	Pie-cherry	Different from WL's "lambicus"
Naardenensis	Dekkera naardenensis	B. naardenensis	ECY-30	strawberry, honey, ripe fruit with a tart, citrusy acidity after 6mo of aging	Isolated from spoiled Dr. Pepper, 1980s
Nanus	Eeniella nana	B. nanus	ECY-24	spicy, saison-like profile	bottled beer - Kalmar, Sweden
Trois	Saccharomyces	S. cerevisiae	WLP644	Mango, Pineapple	Isolate from Drie Fonteinien