2016-1270 AUTOCHTHONOUS YEAST POPULATION FROM DIFFERENT BRAZILIAN GEOGRAPHIC INDICATIONS

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Yeasts are versatile microorganisms which show heterogeneity in their abilities of aromatic molecules formation. The metabolic conversions may improve the production of a particular compound already formed by the microorganism or promote the production of a completely new biochemicals. These conversions depend on the environment. The microbiome of terroir is unique. If the term terroir is a set of physical properties of a vineyard that contribute to the specific characteristics of its wine, the microorganisms will undoubtedly form an integral part of this concept. The microbial ecology of the grape berries is complex. There are yeasts, filamentous fungi and bacteria that can affect the quality of the wine. The aim of the present study was to identify the autochthonous yeast population of grape berries collected from regions with Geographic Indications and those currently working towards achieving Geographical Identification certification: GI-Pinto Bandeira (RS), GI-Vale dos Vinhedos (RS), GI-Monte Belo do Sul (RS), GI-Farroupilha (RS), GI-Vales da Uva Goethe (SC) and Regions of Campanha Gaúcha (Santana do Livramento -RS) and Vale do São Francisco (PE/BA). The identification was carried out by an approach, combining Maldi-Tof-MS, PCR-RFLP of the internal transcribed spacer with 5.8S ribosomal DNA (rDNA) (ITS1-5.8S-ITS2) and sequences of the D1/D2 domain of the 26S rRNA gene. Some species are common to different GIs and in some of them other species are completely absent, besides some places are contiguous areas. In some areas, Hanseniaspora opuntiae, Saccharomyces cerevisiae, Pichia myanmarensis and Hanseniaspora uvarum were the predominant species. Besides these species, reference is also made to following yeasts: Candida akabanensis, Candida apicola, Candida azyma, Candida diversa, Candida californica, Candida inconspicua, Candida zemplinina, Cryptococcus heveanensis, Cryptococcus laurentii, Issatchenkia orientalis, Issatchenkia terricola, Issatchenkia hanoiensis, Kwoniella heveanensis, Metschnikawia pulcherrima, Meyerozyma guilliermondii, Hanseniaspora vineae, Pichia galeiformis, Pichia membranifaciens, Pichia occidentalis, Pichia sporocuriosa, Sporidiobolus ruineniae, Starmerella bacillaris, Zygosaccahromyces bailii, and Zygosaccahromyces bisporus.

POPULATION DE LEVURES AUTOCHTONES DE DIFFERENTES INDICATIONS GEOGRAPHIQUES DU BRESIL

Les levures sont des micro-organismes versatiles qui montrent diversité dans leurs capacités de formation de molécules aromatiques. La conversion metabolyque peut améliorer la production d'un composé donné déjà formé par le micro-organisme ou bien promouvoir la formation de produits biochimiques totalement neufs. Ces convertions sont dépendentes de l'environnement. Le microbiome de terroir est unique. Si le terme terroir est défini comme un ensemble de propriétés physiques d'un vignoble qui contribuent aux caractéristiques spécifiques du vin, les microorganismes seront sans doute une partie de ce concept. L'écologie microbienne des baies de raisin est complexe. Il y a de champignons filamenteux, des levures et bactéries qui peuvent affecter la qualité du vin. Le but de cette étude a été d'identifier la population autochtone de levures de baies de raisin prélévées dans des régions d'Indications Géographiques (IG) du Brésil : IG Pinto Bandeira (RS), IG-Vale dos Vinhedos (RS), IG-Monte Belo do Sul (RS), IG-Farroupilha (RS), IG-Vales da Uva Goethe (SC) et les régions viticoles de Campanha Gaúcha (Santana do Livramento -RS) et Vale do São Francisco (PE/BA). L'identification a été effectuée par une approche combinant MaldiTof-MS, PCR-RFLP de l'espaceur interne transcrit avec l'ADN ribosomique (ADNr 5,8S) (ITS1- 5.8S-IT2) et les séquences du domaine D1/D2 du gène de l'ARNr 26S. Certaines espèces sont communes à différents IGs et dans certains cas d'autres espèces sont totalement absentes, même si certaines zones sont contiguës. Dans certaines régions, Hanseniaspora opuntiae, Saccharomyces cerevisiae, Pichia myanmarensis et Hanseniaspora uvarum ont été les espèces prédominantes. En plus de ces espèces, il est également fait référence aux levures suivantes: Candida akabanensis, Candida apicola, Candida azyma, Candida diversa, Candida californica, Candida inconspicua, Candida zemplinina, Cryptococcus heveanensis, Cryptococcus laurentii, Issatchenkia orientalis, Issatchenkia terricola, Issatchenkia hanoiensis, Kwoniella heveanensis, Metschnikawia pulcherrima, Meyerozyma guilliermondii, Hanseniaspora vineae, Pichia galeiformis, Pichia membranifaciens, Pichia occidentalis, Pichia sporocuriosa, Sporidiobolus ruineniae, Starmerella bacillaris, Zygosaccahromyces bailii, and Zygosaccahromyces bisporus.

LA POBLACIÓN DE LEVADURAS AUTÓCTONAS DE DIFERENTES INDICACIONES GEOGRÁFICAS BRASILEÑAS

Las levaduras son microorganismos versátiles que muestran heterogeneidad en sus habilidades para formar de moléculas aromáticas. La conversión metabólica puede mejorar la producción de un determinado compuesto ya formado por el microorganismo o promover la producción completamente nueva de productos bioquímicos. Estos convertions dependen del entorno. Un microbioma de terroir es único. Si el término terroir es un conjunto de propiedades físicas de un viñedo que contribuyen a las características específicas de su vino, los microorganismos serán, sin duda, parte integrante de este concepto. La ecología microbiana de los granos de uva es compleja. Hay hongos filamentosos, levaduras y bacterias que pueden afectar la calidad del vino. El objetivo del presente estudio fue identificar la población de levaduras autóctonas de las bayas de uva recogidos en regiones con Indicaciones Geográficas y aquellos que trabajan actualmente en la consecución de

la Certificación de Identificación Geográfica: IG-Pinto Bandeira (RS), IG-Vale dos Vinhedos (RS), IG-Monte Belo do Sul (RS), IG-Farroupilha (RS), IG-Vales da Uva Goethe (SC) y las regiones de Campanha Gaúcha (Santana do Livramento (RS) y Vale do São Francisco (PE/BA). La identificación fue realizada por un método, que combina el MALDI-TOF-MS, PCR-RFLP del Espaciador Transcrito Interno con 5.8S ADN ribosomal (ADNr)- 5.8S ((ITS1-5.8S-ITS2)) y secuencias de la D1/D2 Dominio del gen 26S rARN. Algunas especies son comunes a diferentes IGs y en algunos de ellos otras especies están completamente ausentes, además de algunos lugares son áreas contiguas. En algunas zonas, Hanseniaspora opuntiae, Saccharomyces cerevisiae, Pichia myanmarensis y Hanseniaspora uvarum fueron las especies predominantes. Además de estas especies, también se hace referencia a las levaduras siguientes: Candida akabanensis, Candida apicola, Candida azyma, Candida diversa, Candida californica, Candida inconspicua, Candida zemplinina, Cryptococcus heveanensis, Cryptococcus laurentii, Issatchenkia orientalis, Issatchenkia terricola, Issatchenkia hanoiensis, Kwoniella heveanensis, Metschnikawia pulcherrima, Meyerozyma guilliermondii, Hanseniaspora vineae, Pichia galeiformis, Pichia membranifaciens, Pichia occidentalis, Pichia sporocuriosa, Sporidiobolus ruineniae, Starmerella bacillaris, Zygosaccahromyces bailii, and Zygosaccahromyces bisporus.

2016-1114 USE OF GLUTATHION DURING WHITE WINE PRODUCTION – IMPACT ON S-OFF-FLAVORS AND SENSORY PERCEPTION

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Recently two OIV resolutions (OENO 445-2015 and OENO 446-2015) were adopted, defining the use of glutathione (GSH) up to a maximum level of 20 mg/L in must and wine. Various studies have shown the benefits of GSH addition, especially in Sauvignon blanc wines. According to them, oxidative browning of musts and wines is reduced, aroma components such as volatile thiols are preserved and the formation of aging components such Sotolone and 2-aminoacetophenone is delayed. The protective effect of glutathione can be explained by its high affinity to o-quinones, which are formed in the course of phenolic oxidation and cause browning phenomena and other oxidative reactions. On the other hand, the formation of hydrogen sulfide (H_2S) and other S-off-flavors favored by GSH addition are reported. Even during bottle aging reductive off-flavors can occur as a late effect of high GSH additions during winemaking. To investigate the effect of glutathione on the color development, the sensory expression and the formation of sulfide off-flavors, Riesling, Sauvignon Blanc and Chardonnay grapes were processed under different conditions and musts were obtained with different phenolic concentrations. By the addition of GSH as a pure substance or the use of GSH-rich inactivated yeast preparations, the GSH concentration in the musts was varied. After fermentation the wines were either racked from the yeast or subjected to a four-month lees aging. The addition of GSH led to higher GRP contents (GRP = grape reaction product) in the musts whose greenish color was preserved better. At the same time, these musts tended to form higher concentrations of H_2S, methane- and ethane-thiol during fermentation, suggesting that an excess of GSH is responsible for the formation of volatile thiol metabolites. Normally, these substances were degraded at the end of fermentation and their concentration decreased below the odor threshold after racking. The degradation that might be explained by disulfide formation was severely hampered when o-diphenols were present in only low concentrations (for example, in free run wines) or when a must treatment with SO_2 and ascorbic acid was carried out. These observations suggest that an effective deodorization of mercaptans in young wines is closely linked to the oxidizability of o-diphenols. Bottled wines showed generally lower GSH levels than the corresponding musts. However, higher GSH concentrations after yeast aging could be determined, which may explain increased protection against oxidation during further storage. The sensory analysis after bottling shows that the fruity character of Riesling and Sauvignon blancs is enhanced at moderate GSH addition. Overuse of GSH in musts with low phenolic content, however, can lead to sensory perceptible S-off-flavors in the later wines.

EINSATZ VON GLUTATHION BEI DER WEIßWEINBEREITUNG – AUSWIRKUNG AUF SULFIDISCHE OFF-FLAVORS UND DIE SENSORISCHE AUSPRÄGUNG.

Erst kürzlich wurden zwei OIV-Resolutionen (OENO 445-2015 sowie OENO 446-2015) verabschiedet, die den Einsatz Glutathion (GSH) in der Weinbereitung bis zu einer maximalen Dosierung von 20 mg/L in Most und Wein definiert. Verschiedene Studien haben den Nutzen einer GSH-Gabe, vor allem in Weinen der Rebsorte Sauvignon blanc, nachgewiesen. Ihnen zufolge wird die oxidative Bräunung der Moste und Weine vermindert, Aromakomponenten wie flüchtige Thiole erhalten sowie die Bildung von Alterungskomponenten wie Sotolon und 2-Aminoacetophenon verzögert. Die Schutzwirkung des Glutathions kann durch seine hohe Affinität, an o-Chinone zu binden, welche im Zuge der Phenoloxidation gebildet werden und zu Bräunungserscheinungen sowie anderen oxidativen Veränderungen führen, erklärt werden. Den Vorteilen eines GSH-Einsatzes gegenüber stehen Erkenntnisse von anderen Forschen, dass GSH die Bildung von Schwefelwasserstoff (H_2S) und anderen sulfidischen Fehlnoten begünstigen kann. Selbst während der Flaschenreifung des Weines können