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Aroma compounds in cooperage oak wood (*Quercus pyrenaica* Willd.): Effect of site and silvicultural parameters

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Aging wines is a long-used technical step. This praxis was set up for the storage, but later, it has been used because of its unique effects on wine organoleptic properties. The role of wood during this process is crucial. From the sensorial point of view, wood is capable of transmitting aroma-responsible volatile compounds. Also, a reduction of astringency and color changes are produced as a result of the phenolic compounds extraction. Different woods have been used in cooperage (chestnut, cherry-tree); however oak is the most common for its chemical composition and for both its mechanical and physical properties. But, the aging carried out by means of barrels entails a time-consuming and expensive practice. On the one hand, aged wines have to be left in the barrels during a long period before they can be brought to market because of the slow extraction process of aroma compounds. On the other hand, it implies some problems, such as their sanitization and handling. The volatile composition of *Quercus pyrenaica* from NW Spain were analyzed on a wide sample set of more than 100. The relationship between some silvicultural and site parameters and volatile composition was studied. Altitude appeared to be the most significant parameter. However, other factors such as annual precipitation and number of trees per hectare whose effects on the volatile compounds were not significant. The influence of geographical location seemed to have a more specific impact. The content of extractable compounds permitted a separation of samples according to their origin.

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Moving away from non-uniform biologicals in healthcare: Development of synthetic embryo culture and sperm cryopreservation media solutions

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Embryo Culture (ECM), Cell, Gamete and Embryo Cryoprotectant (CM), Stem Cell Culture (SCCM), Cell-based Vaccine Production Media (VPM), etc., contain donor serum proteins (DSPs) which carry risk of disease transmission to patients/their babies/healthcare workers. The European Union recommends avoidance of non-uniform biologicals in healthcare products (EU Tissue Directive No.2004/23/EU) by April 2007. Most manufacturers of healthcare products have not fully complied with this directive. Available embryo culture media (ECM) for human ART supplemented with human serum albumin (HSA) contain contaminants such as hazardous pathogenic agents, micro DNA/RNA strands and undeclared proteins, all of which has the potential to cause adverse events for the baby including epigenetic effects, possible genetic crossovers with embryonic genome affecting the genetic constitution of the embryo and batch variation in quality of media. Late onset adverse events cannot be ruled out. The author developed synthetic human embryo culture media (Synbios™) devoid of DSPs. A clinical trial was performed successfully and patented in USA (US Patent 8415094)/PCT protected in Canada, EU, Australia, Russia, Israel and many nations worldwide. A synthetic spermatozoa cryopreservation medium (SCM) has also been developed and successfully applied with pregnancies achieved. More efforts are needed to develop culture media for the stem cell and vaccine industries. Efficacious synthetic ECM and SCM have been developed which eliminates disease transmission, is safe and even culturally acceptable as it was certified "Halal" or permissible by the EU Halal authority. It is anticipated to comply with regulations.

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