

OENOLOGY II

(Specialization Horticulture, 4th Year of study, 1st Semester)

Credits (ECTS): 5

Course category: Specialized discipline

Course holder: Prof. Valeriu V. COTEA, PhD

Objectives of the discipline:

The oenology course aims to provide students with up-to-date information related to primary vinification, authorized oenological practices, stabilization and conditioning of wines, viticulture legislation, usual and specific analyzes of wines and derived products, other information to help the professional training of the future horticultural engineer.

Contents (syllabus)

Course (chapters/subchapters)
1. CHEMICAL COMPOSITION OF WINES.
1.1. The chemical composition of wine. Alcohols in wine. Wine acids. Phenolic compounds in wine. Mineral substances in wine. Aldehydes in wine. Acetals and esters from wine.
2. TECHNOLOGICAL OPERATIONS OF WINE FINING AND CONDITIONING.
2.1. Technological operations of wine fining and conditioning. Periodic filling of storage containers. Wine storage procedures in partially filled vessels. Wine racking. Equalization and blending of wines.
3. THE EVOLUTION AND DEVELOPMENT PHASES OF WINES.
3.1. The evolution and development phases of wine. The evolution and development phases of wine. The fermentation phase and the wine formation phase. The maturation phase of the wine. The main processes that take place during wine maturation. Wine fast maturation processes. Maturation of wines in small oak barrels. The aging phase of the wine. The degradation phase of the wine.
4. UNDESIRABLE CHANGES THAT MAY APPEAR IN WINES
4.1. Undesirable physico-chemical changes in wine. Precipitation of tartaric salts in wines. Casses.
4.2. Precipitation of coloring substances in red wines. Accidental foreign smells and tastes. Atypical aging of wines. The smell and taste of cork.
4.3. Undesirable microbiological changes in wine. Wine flor. Wine vinegary. Degradation of tartaric acid. Degradation of glycerol. Ropy wine disease. Bitterness taint. Lactic souring. Moussiness.
5. FINING, CONDITIONING AND STABILIZATION TREATMENTS APPLIED TO WINES.
5.1. Spontaneous wine clarification. Clarification of wine by centrifugation. Wine fining with fish glue. Wine fining with gelatin. Wine fining with egg white. Wine fining with milk or casein. Wine fining with synthetic polyamides. Treatment with bentonite.
5.2. Filtering the wine. Filter materials used in the wine industry. Filter layers. Filtering membranes. The main types of filters and their use in wine practice. Tangential filtering.
5.3. Stabilization treatments applied to wine. Refrigeration of wine. The classic process of refrigerating wine. The process of contact refrigeration of wine. Treatment of wine with metatartaric acid.
5.4. Stabilization treatments applied to wine. Pasteurization of wine. Pasteurization processes. Treatment of wine with potassium ferrocyanide. Treatment of wine with calcium phytate. Electrodialysis of wine and treatment with ion exchangers.
6. BOTTLING OF WINES.

6.1. Bottling of wines. Containers used for bottling wine. Bottle capping materials. Materials used to decorate the bottles. Wine bottling technology. Bottling technological lines. Sterile bottling.
7. CLASSIFICATION OF WINES AND BASIC TECHNOLOGIES FOR OBTAINING THE MAIN CATEGORIES AND TYPES OF WINE.
7.1. Classification of wines.
7.2. The basic technologies for obtaining white wines. Production technology of white table wines. The production technology of DOC dry white wines. The production technology of DOC demi-sweet, semi-sweet and sweet white wines. Aromatic wine production technology.
7.3. The basic technologies for obtaining red wines. Production technology of table red wines. DOC red wine production technology. Production technology of rosé wines.

Practical activity
1. Technological process of primary winemaking.
2. Determination of total phenolic compounds in wines.
3. Determination of the content of anthocyanins in grapes and wine.
4. Determination of total and free SO ₂ in musts and wines.
5. Clarification of wine with bentonite.
6. Clarification of wine with gelatin.
7. Filtering the wine.
8. Equalization and blending of wines.
9. The evolution phases of wine. Comparative tasting.
10. Identification of tartaric, lactic and malic acids in wine.
11. Determination of ash and alkalinity in wine.
12. Determination of iron in wine.
13. Treatment of wines with potassium ferrocyanide.
14. Test

Bibliography

1. Cotea, V.V., Note de curs.
2. Pomohaci, N., Gheorghiuță, M., Iuoraș, R., Stoian, V., Cotrau, A., Cotea, V.V., 1990, Oenologie, Editura Didactică și Pedagogică, București.
3. Pomohaci, N., Stoian, V., Gheorghiuță, M., Sîrghi, C., Cotea, V.V., Nămoșanu, I., 2000, Oenologie. Volumul 1: Prelucrarea strugurilor și producerea vinurilor. Editura Ceres, București.
4. Pomohaci, N., Cotea, V.V., Stoian, V., Nămoșanu, I., Popa, A., Sîrghi, C., Antoce, Arina, 2001, Oenologie. Volumul 2: Îngrijirea, stabilizarea și îmbutelierea vinurilor. Construcții și echipamente vinicole, Editura Ceres, București.
5. Cotea, V.V., Cotea V.D., 2006, Tehnologii de producere a vinurilor, Editura Academiei Române, București.
6. Cotea, V.D., Zanoaga, V.C., Cotea, V.V., 2009, Tratat de Oenochimie, vol. I, vol. II, Editura Academiei Române, București.
7. Cotea, V.V., Zanoaga, V.C., Cotea V.D., 2010, Oenologie. Construcții, vase și utilaje vinicole, Editura Academiei Române, București, 2010.

Evaluation

Evaluation form	Evaluation Methods	Percentage of the final grade
Final exam	Written / oral examination	60
Evaluation of the activity during the semester	Written and oral assessments during the semester	40

Contact

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