

OVERVIEW OF THE ROMANIAN STANDARDS IN SENSORY ANALYSIS

BY

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Abstract. Sensory analysis standards are indispensable instruments in the assessment of consumer products by the use of the human senses: sight, hearing, smell, taste and touch. Paper presents an overview of Romanian standards in sensory analysis and a compare between Romanian and international standards. Sensory analysis standards help developers and producers in the evaluation of their products to ensure product quality, consumer satisfaction, and marketing success.

Key words: sensory analysis, standards.

1. Introduction

Sensory analysis is a discipline dealing with planning, preparation, carrying out and evaluation of sensory tests, including interpretation of results and using human senses as measuring instruments.

Sensory analysis can be divided into three sub-sections:

- Effective testing (objective data about products);
- Affective testing (subjective data such as preferences; ex: tests to evaluate the popularity of an aroma or gustatory impression);
- Perception (the biochemical and psychological aspects of sensation).

Effective testing deals with obtaining objective data about products.

Test ranges from basic discrimination testing to descriptive profiling.

The type of panel required for this type of testing would normally be a well-trained team of experts. An expert possesses technical knowledge and experience and is responsible for testing particular products/product groups.

Affective testing (or consumer testing) deals with the obtaining of subjective opinions or about the popularity of an aroma. Affective testing needs

large panels of untrained personnel, although smaller focus groups can be utilized to gain opinions into products. The testing can vary from simple comparative tests to questionnaires regarding the acceptance of individual characteristics.

Perception deals with the biochemical and psychological aspects relating to human sensations. Perceptions are information transmitted by the sensory organs without any recognition features, but having quality and intensity characteristics. Knowing the psychological mechanisms involved it may be possible to find why certain characteristics are preferred over others.

Sensory analysis standards are indispensable instruments in the assessment of consumer products by the use of the human senses: sight, hearing, smell, taste and touch. The practical activities of sensory analysis require the use of a panel of human evaluators. Test results are recorded based on human evaluator's appreciations to the products under test. Statistical analysis is then employed to generate conclusions and opinions regarding the product.

These sensory analysis standards help developers and producers in the evaluation of their products to ensure product quality, consumer satisfaction, and marketing success.

Paper presents an overview of Romanian standards in sensory analysis and a comparative study between Romanian and international standards.

2. Method

Standards are useful for all types of sensory evaluation laboratories, in particular those in industry, in research and development organizations, in service organizations and in the field of official authorities concerned with product control. It can be assumed that the sensory analysis laboratory can perform all types of sensory tests. This means analytical tests such as discrimination tests, descriptive analysis (sensory profile), and consumer tests (hedonic tests). The individual profile of sensory activities of an organization determines the boundaries and conditions to be considered for planning and implementing the sensory evaluation laboratory and its staff.

Standards provide guidance on staff functions in order to improve the organization of a sensory evaluation laboratory, to optimize the use of personnel, and to improve the efficiency of sensory tests. Standards are applicable to any organization planning to establish a formal structure for sensory evaluation. The main aspects to be considered are the education, background and professional competence of staff members, and the responsibilities of staff members at different functional levels.

The application of this guidance by the organization is flexible and depends on the needs and possibilities within an organization.

3. Discussions

The application of standards by a country or by an organization is flexible and depends on the needs and possibilities within the country or organization.

Examining the ISO standards in this domain, 38 ISO standards were found to be active, and some of them partially under development. Romanian organizations and laboratories have today 24 Romanian standards in Sensory analysis, translated from ISO standards (Table 1).

Table 1
ISO and Romanian Standards in Sensory Analysis

ISO Standards	Romanian standards
ISO 3103:1980 Tea – Preparation of liquor for use in sensory tests [1]	Not translated
ISO 3591:1977 Sensory analysis – Apparatus – Wine - tasting glass [2] ISO 3972:1991 Sensory analysis – Methodology – Method of investigating sensitivity of taste [3] ISO/DIS 3972 Sensory analysis – Methodology – Method of investigating sensitivity of taste (UD*) [4]	SR ISO 3591:2006 Analiză senzorială. Aparatură. Pahar pentru evaluarea vinului [5] SR ISO 3972:2007 CT 95 Analiză senzorială. Metodologie. Metoda de investigare a sensibilității gustative [6]
ISO 4120:2004 Sensory analysis – Methodology – Triangle test [7] ISO 4121:2003 Sensory analysis – Guidelines for the use of quantitative response scales [8]	SR EN ISO 4120:2007 Analiză senzorială. Metodologie. Testul triunghiului [9] SR ISO 4121:2008 Analiză senzorială. Principii pentru utilizarea scalelor cantitative de răspuns [10]
ISO 5492:2008 Sensory analysis – Vocabulary [11] ISO 5495:2005 Sensory analysis – Methodology – Paired comparison test [12] ISO 5495:2005/Cor 1:2006 [13] ISO 5496:2006 Sensory analysis – Methodology – Initiation and training of assessors in the detection and recognition of odours [14] ISO 5497:1982 Sensory analysis – Methodology – Guidelines for the preparation of samples for which direct sensory analysis is not feasible [15]	SR EN ISO 5492:2009 Analiză senzorială. Vocabular [16] SR EN ISO 5495:2007 Analiză senzorială. Metodologie. Încercare de comparare prin perechi [17] SR ISO 5496:2008 Analiză senzorială. Metodologie. Inițierea și instruirea evaluatorilor pentru detectarea și recunoașterea mirosurilor [18] SR ISO 5497:2006 Analiză senzorială. Metodologie. Linii directe pentru prepararea eșantioanelor pentru care analiza senzorială directă nu este aplicabilă [19]

Table 1
Continuation

ISO Standards	Romanian standards
<p>ISO 6564:1985 Sensory analysis – Methodology – Flavour profile methods [20]</p> <p>ISO 6658:2005 Sensory analysis – Methodology – General guidance [21]</p>	<p>SR ISO 6564:2007 Analiză senzorială. Metodologie. Metode pentru stabilirea profilului aromei [22]</p> <p>SR ISO 6658:2007 T CT 95 Analiză senzorială. Metodologie. Principii generale [23]</p>
<p>ISO 6668:2008 Green coffee – Preparation of samples for use in sensory analysis [24]</p>	<p>Not translated</p>
<p>ISO/DIS 8586 Sensory analysis – General guidance for the selection, training and monitoring of selected and expert assessors (UD) [25]</p> <p>ISO 8586-1:1993 Sensory analysis – General guidance for the selection, training and monitoring of assessors – Part 1: Selected assessors. Supplements the information given in ISO 6658 [26]</p>	<p>Not translated</p>
<p>ISO 8586-2:2008 Sensory analysis – General guidance for the selection, training and monitoring of assessors – Part 2: Expert sensory assessors [27]</p> <p>ISO 8587:2006 Sensory analysis – Methodology – Ranking [28]</p> <p>ISO 8588:1987 Sensory analysis – Methodology – “A” – “not A” test [29]</p> <p>ISO/NP 8588 Sensory analysis – Methodology – “A” – “not A” test (UD) [30]</p> <p>ISO 8589:2007 Sensory analysis – General guidance for the design of test rooms [31]</p>	<p>SR EN ISO 8586-2:2008 Analiză senzorială. Ghid pentru selecția, instruirea și monitorizarea evaluatorilor. Partea 2: Evaluatori experți senzoriali [32]</p> <p>SR ISO 8587:2008 Analiză senzorială. Metodologie. Clasificare [33]</p> <p>SR ISO 8588:2007 Analiză senzorială. Metodologie. Testul “A” – “non A” [34]</p> <p>SR ISO 8589:2008 Analiză senzorială. Direcții generale pentru proiectarea camerelor de testare [35]</p>
<p>ISO 10399:2004 Sensory analysis – Methodology – Duo-trio test [36]</p>	<p>SR ISO 10399:2007 Analiză senzorială. Metodologie. Testul duo-trio [37]</p>

Table 1
Continuation

ISO Standards	Romanian standards
<p>ISO 11035:1994 Sensory analysis – Identification and selection of descriptors for establishing a sensory profile by a multidimensional approach [38] ISO 11036:1994 Sensory analysis – Methodology – Texture profile [39] ISO 11037:1999 Sensory analysis – General guidance and test method for assessment of the colour of foods [40] ISO/DIS 11037 Sensory analysis – General guidance for sensory assessment of the colour of products (UD) [41] ISO 11056:1999 Sensory analysis – Methodology – Magnitude estimation method [42]</p>	<p>SR ISO 11035:2007 Analiză senzorială. Identificare și selecție de descriptori pentru stabilirea unui profil senzorial prin abordare multidimensională [43] SR ISO 11036:2007 Analiză senzorială. Metodologie. Profil de textură [44] SR ISO 11037:2007 Analiză senzorială. Ghid general și metodă de testare pentru evaluarea culorii alimentelor [45] SR ISO 11056:2008 Analiză senzorială. Metodologie. Metoda de estimare a magnitudinii [46]</p>
<p>ISO/DIS 11132 Sensory analysis – Methodology – General guidance for monitoring the performance of a quantitative sensory panel (UD) [47] ISO/WD 11136 Sensory analysis – Methodology – General guidance for conducting hedonic tests with consumers in an controlled area (UD) [48]</p>	<p>Not translated</p>
<p>ISO 13299:2003 Sensory analysis – Methodology – General guidance for establishing a sensory profile [49] ISO 13301:2002 Sensory analysis – Methodology – General guidance for measuring odour, flavour and taste detection thresholds by a three-alternative forced-choice (3-AFC) procedure [50] ISO 13302:2003 Sensory analysis – Methods for assessing modifications to the flavour of foodstuffs due to packaging [51]</p>	<p>SR ISO 13299:2006 Analiză senzorială. Metodologie. Direcții generale pentru stabilirea unui profil senzorial [52] SR ISO 13301:2008 Analiză senzorială. Metodologie. Linii directoare generale pentru măsurarea pragului de detecție a mirosului, aromei și gustului prin procedura selecției forțate “1 din 3” [53] SR ISO 13302:2008 Analiză senzorială. Metode pentru evaluarea modificărilor aromei alimentelor, cauzate de ambalaje [54]</p>

Table 1
Continuation

ISO Standards	Romanian standards
<p>ISO 13300-1:2006 Sensory analysis – General guidance for the staff of a sensory evaluation laboratory – Part 1: Staff responsibilities [55]</p> <p>ISO 13300-2:2006 Sensory analysis – General guidance for the staff of a sensory evaluation laboratory – Part 2: Recruitment and training of panel leaders [56]</p>	Not translated
<p>ISO 16820:2004 Sensory analysis – Methodology – Sequential analysis [57]</p>	<p>SR ISO 16820:2008 Analiză senzorială. Metodologie. Analiza secvențială [58]</p>
<p>ISO 16657:2006 Sensory analysis – Apparatus – Olive oil tasting glass [59]</p> <p>ISO 22308:2005 Cork stoppers – Sensory analysis [60]</p> <p>ISO/DIS 29842 Sensory analysis – Methodology – Balanced incomplete block designs (UD) [61]</p>	Not translated

*UD = under development

Initially, during 80's there were only some standards in this domain:

- STAS 12655-88 Produse alimentare. Analiză senzorială. Condiții pentru degustători;
- STAS 12656-88 Produse alimentare. Analiză senzorială. Metode cu scări de punctaj.

Another standard, SR 6345/95 contains partially data on sensory analysis for milky products.

Starting from 2000, 24 ISO standards were adapted and translated into Romanian, representing about 64% of ISO standards. Only 14 ISO standards are still not translated.

Examples of not translated standards:

- ISO 3103:1980 Tea - Preparation of liquor for use in sensory tests;
- ISO 6668:2008 Green coffee - Preparation of samples for use in sensory analysis;
- ISO 16657:2006 Sensory analysis - Apparatus - Olive oil tasting glass;

– ISO 22308:2005 Cork stoppers - Sensory analysis.

Also, standards about general guidance for the staff of a sensory evaluation laboratory or general guidance for monitoring the performance of a quantitative sensory panel still need to be translated. Some of them are covered by old Romanian standards STAS.

4. Conclusions

The Sensory analysis standards are very important tools in the assessment of consumer products by the use of the human senses. There are 24 Romanian standards in Sensory analysis, adapted from ISO standards, representing about 3/4 of ISO standards. These show a good adaptation of Romanian standards to ISO standards and show that standardization depends on the needs and possibilities within the country [62]. These sensory evaluation standards help consumer goods developers and manufacturers in the evaluation of their goods to ensure product quality, marketing success and consumer satisfaction.

A c k n o w l e d g e m e n t s. This study was performed partially under the grant no. CE/MC/280/2009 «Méthodes et Techniques d'analyse des matériaux – Analyse Sensorielle», funded by Agence Universitaire de la Francophonie (AUF) and realized at Université Montpellier II - Sciences et techniques du Languedoc Montpellier, France.

Received: October 31, 2010

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PREZENTARE GENERALĂ A STANDARDELOR ROMÂNEȘTI ÎN ANALIZA SENZORIALĂ

(Rezumat)

Standardele privind analiza senzorială sunt instrumente indispensabile în evaluarea produselor de larg consum (produse alimentare, cosmetice și farmaceutice) prin utilizarea simțurilor umane: auz, vedere, miros, gust și pipăit. Lucrarea prezintă o imagine de ansamblu a standardelor românești în analiza senzorială și o comparare între standardele românești și cele internaționale. Standardele de analiză senzorială ajută dezvoltatorii și producătorii în evaluarea produselor alimentare, cosmetice și farmaceutice pentru a asigura calitatea produsului, satisfacția consumatorilor și succesul de marketing.