

**GDM311**

**DUYUSAL  
ANALİZ**

**Prof. Dr. Kezban Candođan**



**Prof. Dr. Kezban Candođan**

**Telefon: 203-3300 (3647 dahili)**

**E-posta: [candogan@eng.ankara.edu.tr](mailto:candogan@eng.ankara.edu.tr)**

**Ofis: Gıda Mühendisliđi 3 nolu bina**

# GDM311 DUYUSAL ANALİZ

## Dersin Amacı

- Gıdaların duyuusal deęerlendirilmesinde kullanılan teknikler ve duyuusal analiz prensipleri konularında detaylı bilgi saęlanması
- Kalite kontrolünde ve güvencesinde duyuusal analizin öneminin kavratılması ve duyuusal analiz hakkında edinilen bilgilerin gıda endüstrisindeki sorunların çözümünde kullanılması
- Bir gıdanın duyuusal deęerlendirilmesinin tasarımı, gerçekleştirilmesi ve sonuçların yorumlanması konularında deneyim kazanılması

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## Haftalık Ders Programı

- **1. Hafta** : Genel giriş, Dersin tanıtımı ve işlenişi hakkında bilgi, Duyusal analizin tanımlanması, Kalite kontrolde duyusal analiz
- **2. Hafta** : Duyusal değerlendirilmede fizyolojik ve psikolojik temeller, Duyusal özellikler ile ilgili algılar, duyu etkileşimleri
- **3. Hafta** : Duyusal değerlendirilmede test odası, ürün ve panelist özellikleri
- **4. Hafta** : Eşik değeri, Duyusal analizde kullanılan skalalar

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## Haftalık Ders Programı

- 5. Hafta : Farklılık testleri
- 6. Hafta : Duyusal analizde sonucu etkileyen faktörler
- 7. Hafta : Tanımlayıcı analiz

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## Kaynaklar

- Meilgard, M., Civille, G.V., Carr, B.T. 2006. *Sensory Evaluation Techniques*, 4th Ed., CRC Press LLC (Ders Kitabı).
- Altuğ, T., Elmacı, Y. 2005. *Gıdalarda Duyusal Değerlendirme*, Meta Basım Matbaacılık.
- Jellinek, G. 1985. *Sensory Evaluation of Food: Theory and Practice*, Ellis Horwood Ltd.
- Civille, G.V., Lyon B.G. 1996. *Aroma and flavor lexicon for sensory evaluation terms, definitions, references, and examples*, ASTM publications.
- “Gıdalarda Duyusal Analizler” Eğitim Programı Notları. 1994. TÜBİTAK-MAM, Gebze.

# GDM311 DUYUSAL ANALİZ- Kaynaklar

## ■ Dergiler;

- Journal of Sensory Studies
- Journal of Food Science
- Food Technology
- European Food Research and Technology

## ■ Web Sayfaları;

- <http://www.ift.org/divisions/sensory/index.html>
- <http://www.astm.org>
- <http://www.foodsensory.net> (<http://www.dlg.org>)

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The official journal of the Society for Sensory Professionals

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**Edited by:**

Edgar Chambers IV and Harry T. Lawless

**ISI Journal Citation Reports® Ranking:** 2010: Food Science & Technology: 34 / 126  
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Daryl B. Lund

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Within the sensory science focus area, you'll learn about the latest advancements in the science of sensory and consumer research as they apply to food. Explore new and improved sensory methods, sensory science's role within the food product development process, the relationship between sensory and market research, sensory science's focus on consumer understanding, and much more.

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## Sensory Evaluation Standards

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ASTM's sensory evaluation standards are instrumental in the assessment of consumer products by the use of the human senses (sight, smell, taste, touch, and hearing). The discipline of sensory analysis requires the use of a panel of human evaluators, wherein test results are recorded based on their responses to the products under test. Statistical analysis is then employed to generate inferences and insights regarding the product. These sensory evaluation standards help consumer goods developers and manufacturers in the evaluation of their goods to ensure product quality, consumer satisfaction, and marketing success.

### List of sensory evaluation standards developed by ASTM:

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#### Food and Beverage Evaluation

Designation	Title
E1083 - 00 (2011)	Standard Test Method for Sensory Evaluation of Red Pepper Heat
E1346 - 90 (2010)	Standard Practice for Bulk Sampling, Handling, and Preparing Edible Vegetable Oils for Sensory Evaluation
E1395 - 90 (2011)	Standard Test Method for Sensory Evaluation of Low Heat Chilies
E1396 - 90 (2011)	Standard Test Method for Sensory Evaluation of Oleoresin Capsicum
E1627 - 11	Standard Practice for Sensory Evaluation of Edible Oils and Fats
E1810 - 96	Standard Practice for Evaluating Effects of Contaminants on Odor and Taste of

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## ASTM E1958 -07e1 Standard Guide for **Sensory** Claim Substantiation

...This guide covers reasonable practices for designing and implementing **sensory** tests that validate claims pertaining only to the **sensory** or perceptual attributes, or both, of a product. This guide was developed for use in the United States and must be adapted to the laws and regulations for advertisement claim substantiation for any other country. A claim is a ... [More](#)

## ASTM E1885 -04 Standard Test Method for **Sensory** Analysis—Triangle Test

... Significance and Use This test method is effective for the following test objectives: 5.1.1 To determine whether a perceivable difference results or a perceivable difference does not result, for example, when a change is made in ingredients, processing, packaging, handling or storage; or 5.1.2 To select, train and monitor assessors. This test method itself does not change ... [More](#)

## ASTM E2454 -05 Standard Guide for **Sensory** Evaluation Methods to Determine the **Sensory** Shelf Life of Consumer Products

...This guide provides appropriate **sensory** testing approaches and possible



# DUYUSAL ANALİZ

## Tanımı ve Gelişimi

Duyusal muayene

Duyusal panel

Panel test, subjektif test

Tat testi

Değüstasyon

Duyusal analiz

Organoleptik değerlendirme

# Duyusal Analiz- Tanım

- “Görme, koklama, tatma, dokunma veya işitme duyularınının gıdaların çeşitli özelliklerine tepkilerini oluşturan, ölçen, analiz eden ve yorumlayan bir disiplindir”





# Duyusal Analiz- Tarihçe

- 1753- İngiltere’de “Kadınlar Birliği”nin yayınladığı “Gıda Alışveriş Yönergesi”nde satın alınan gıdaların kontrolünde dikkat edilecek hususlar belirtilmiş, duyuusal değerlendirilmeye yer verilmiştir.



# Duyusal Analiz- Tarihçe

- Dünya ticaretindeki ilerlemelerle şarap, kahve, çay, tereyağı, et ve balık gibi gıdaların sınıflandırılarak değerlendirilmesi
- 1900'lerin başlarında sınıflandırma çalışmalarıyla birlikte, profesyonel tadımcıların ve danışmanların gıda, içecek ve kozmetik sektöründe öneminin artması

# Duyusal Analiz- Tarihçe

- Pangorn (1964) Amerikan askeri güçlerine iyi kalitede gıda sağlama çabalarından ve İskandinavya'da “üçgen test” gelişiminden söz eder.
- California Davis Üniversitesi Gıda Bilimi Bölümü'nde Amerine, Pangorn ve Roessler (1965) tarafından duyusal analiz üzerine yayınlanan kitap (*“Principles of Sensory Evaluation of Foods”*)

# Duyusal Analiz- Tarihçe

- 1975- İngiliz Standartlar Enstitüsü (BSI) tarafından yayınlanan duyuşal testler ve tanımlarla ilgili bir kitap
- 1976- Uluslararası Standartlar Örgütü (ISO) tarafından hazırlanan “*Duyusal Analiz Yöntemleri Standart Taslağı*”

# Duyusal Analiz- Tarihçe

- Türkiye’de ilk kez şarap kalitesinin değerlendirilmesinde kullanılmıştır.
- 1957’den beri şarap kalite kontrolünde yasal bir yöntem olarak uygulanır.



# Duyusal Analizin Temel Uygulama Alanları

- Endüstriyel üretim
- Araştırma-Geliştirme
- Denetim

# Duyusal Analiz- Temel uygulama alanları

## Endüstriyel üretim

- Kalite güvenliği
- Üretim kontrolü
- Ham madde kontrolü
- Son ürün kontrolü
- Formülasyonlardaki değişiklikler
- Yöntem değişiklikleri
- Yeni gelişmeler
- Depolama süresinin kontrolü

# Duyusal Analiz- Temel uygulama alanları

## ■ Araştırma-Geliştirme

- Yeni ürün geliştirme
- Ambalaj malzemelerinin, işleme yöntemlerinin duyu kaliteye etkileri

## ■ Denetim

- Duyusal kalite yönünden tüketilebilirliğin ve öngörülen dayanıklılık süresinin belirlenmesi



# Duyusal Analiz- Temel uygulama alanları

- Gıdaların karakterizasyonu ve değerlendirilmesi
- Kişisel hijyen ürünleri
- Çevresel ürünler
- Saf kimyasalların test edilmesi

# Duyusal Analiz

- Güvenilir bir duyu analizi yapan kişinin optimize etmesi gereken faktörler;
  - Sorunun tanımı
  - Test tasarımı
  - Enstrümantasyon
  - Sonuçların yorumlanması