Subject Index

A

Aroma and flavor research in Chinese baijiu, current practice and future trends, 145
astringent and bitter taste, volatile compounds, 166
astringent compounds in baijiu, DoTs, 169f
bitter and astringency compounds in baijiu, flow diagram of extraction and separations, 167f
bitter compounds in baijiu, DoTs, 169f
fraction B, RP-HPLC, 168f
baijiu, volatile compounds identified, 146
baijiu, carbonyl compounds, 147
Chinese baijiu, aroma compounds threshold, 148
aroma compounds detected in Chinese baijiu, thresholds, 148f
aroma compounds in liquors, differences between, 157
baijiu, important aroma compounds, 151
chixiang aroma, complete recombinate, 160f
chixiang aroma type baijiu, 159
complete recombinate of strong aroma type baijiu, omission experiments, 153f
Erguotou baijiu, important aroma, 154
fenxiang aroma type baijiu, 164
herb-like aroma type baijiu, 165
light aroma type fenjiu, omission experiments, 156f
24 odorants, orthonasal odor concentrations, 152f
29 odorants, orthonasal odor concentrations, thresholds, 155f
roasted-sesame-like aroma type baijiu, 161
roasted-sesame-like type aroma baijiu, orthonasal odor concentrations, 162f
xiaoxian, shape, 158f
conclusions, 170
introduction, 146
Aroma compounds in Wuliangye, research progress
baobaoqu, aroma compounds, 257
five grains, aroma compounds, 255
five grains, aroma active compounds, 256f
introduction, 253
Wuliangye liquor, production process flowchart, 255f
Wuliangye liquor fermentation, 254f
rice husk, aroma compounds, 258
aroma compounds, variation of total concentration, 258f
raw rice husk distillation process, variation of different types of aroma compounds, 259f
summary, 259
raw rice husk, off-flavor compounds, 259
Wuliangye liquor, aroma compounds, 259

B

Baijiu, flavor chemistry conclusions, 217
funding, 218
introduction, 177
baijius, relationships among the 12 flavor type, 178f
SFB, brewing technology, 179
baijiu with sesame flavor, brewing process, 180f
distillation, 182
fermentation, 180
SFB, research progresses on flavor chemistry, 183
contents of compounds in four styles of SFB, PCA analysis results, 205f
FD values and OAVs, 216
four different SFB, aroma, taste, and mouthfeel profile, 184f
nitrogenous compounds in different flavor baijiu, PCA on the contents, 206f
sesame-flavor baijiu (SFB), aroma-active compounds identified, 207f
sesame-flavor baijiu (SFB), volatile compounds, 186f
several typical components between SFB and other flavor styles of baijiu, content differences, 204f
SFB, aroma profiles, 184f
SFB, volatile compounds, 185

Chocolate and pleasure, chemistry
chocolate as an aphrodisiac, 39
conclusions, 39
human studies, 38
manufacture, 33
chocolate manufacture, flow chart, 34f
chocolate types, typical composition, 35t
neurotransmitters, 38
sensory attributes, 35
sensory attributes in chocolate, compounds responsible, 36t
specific compounds, 37
caffeine, phenethylamine, and anandamide, structures, 37f

Distilled spirits, influence of ethanol on flavor perception
conclusion, 286
flavor perception, physiological effect, 281
different ethanol concentrations, odor threshold of 2-phenylethanol, 284t
selected aroma compounds, odor detection thresholds, 283f
significant aroma, mean intensity rating, 282f
flavor release, physicochemistry, 279
introduction, 277
selected distilled spirits, key aromas, 278t
materials and methods, 284
results and discussion, 285
selected whiskey aroma compounds, FD factors, 285t

Distilled spirits, overview
absinthe, 130
brandies, 132
bajiu, 137
bajiu aging, China jar used, 140f
Baijiu fermentation pit, 139f
Baijiu manufacturing process, 138f
cognacs, 134
common liqueurs, examples, 133t

Maotai liquor production, typical flow chart, 141f
qu, typical shape, 137f
rum, 136
solid state distillation apparatus, 139f
whiskey, 135
consuming distilled spirits, 142
gin, 127
dominant botanicals gravimetrically, typical gin recipe, 130t
gin production, major botanical used, 128
liqueurs, 132
neutral alcohol, distilled spirits based, 125
neutral spirit production, outline, 126
spirits, general manufacturing process, 126f
vodka, 127

Folium isatidis leaf, aroma profile, 263
conclusion, 274
introduction, 264
production of bingqu, raw materials, 264f
material and methods, 265
GC-MS, 266
results and discussion, 267
aroma compounds in F. isatidis, total ion chromatogram, 268f
aroma compounds in F. isatidis leaf, standard curves and concentrations, 271t
F. isatidis leaf by GC-O, aroma compounds, 268f
overall odor profiles from different solvents, comparison, 267f

Food ingredients smoked, changes in aroma and sensory profile, 67
introduction, 68
materials and methods, 68
cream cheese, sensory profiling, 69
smoked tomato paste, quantitation of volatiles, 70
results, 71
aroma compounds, concentration and approximated OAV, 77t
overall conclusion, 78
selected volatile compounds, relative peak areas, 72t
sensory attributes, PC1 vs. PC2, 75f
sensory attributes found in low-fat or full-fat cream cheese, mean panel scores, 73

tomato paste of aroma compounds, quantitative comparison, 76

Fragrance and attraction

Amber Xtreme and Trisamber, discovery, 10
Amber Xtreme and Trisamber, route, 11
Amber Xtreme isomers, odor differences, 11f

Cassifix vs. ent-Cassifix, 12
Cassifix and enantiomer ent- Cassifix, odor differences, 13f

consumer fragrances, technologies used to synthesize fragrance molecules, 6

Diels-Alder technology, examples, 7

Diels-Alder technology, fragrance ingredients based, 7f

discovery of new molecules, synthetic technologies used, 5

diverse technologies employed, more examples, 8

consumer fragrances, fragrance ingredients, 9f

esential oils, analysis, 4

Italian lemon oil, key components, 4f

flavor and fragrance business, 2

fragrance design, 2

perfumery triangle, 3f

fragrance ingredients, chirality, 11
galaxolide key chiral diastereomers, odor differences, 12f

methyl jasmonate chiral diastereomers, odor differences, 11f

fragrances, future, 14
Victoria, Canada, Butchart Garden, 14f

fragrances, language, 2

fragrances, precious essential oils used, 3

future, fragrance technologies, 15

IFF classic fragrance molecules, discovery, 6

IFF classic fragrance ingredients, iconic fragrances created, 6f

introduction, 1

living flower technology, 13

IFF botanical garden, 14f

IFF headspace technology, 13f

new amber notes, search, 9

key fragrance ingredients with ether moiety, structure, 9f

new molecules, search, 5

nitriles, use, 7

nitriles used in perfumery, examples, 8f

quest of new amber molecules, genesis of an exploratory idea, 10

allyl Herbac and Galbaniff, cyclization, 10

3R (—)-muscone, 12

muscone chiral enantiomers, odor differences, 12f

I

Islay single malt scotch whiskies, rapid quantitation of phenolic compounds, 117

conclusions, 123

experimental procedures, 119

whisky analysis, 120

whisky samples, overview, 119t

introduction, 118

results and discussion, 121

LAPH QC, mass spectra, 122f

phenol, cresol, and guaiacol in whisky samples, concentrations, 121t

L

Lab-scale smoke generator, development and performance characterization

conclusion, 90

introduction, 81

materials and methods

lab-scale smoke generator, schematic, 84f

Mānuka wood powder, particle size distribution, 83f

results and discussion, 85

Mānuka smoke generated at 280 °C, GC-MS chromatograms, 86f

Mānuka smoke generated at 480 °C and 280 °C, GC-MS chromatograms, 87f

selected PAHs under different conditions, comparison of levels, 89f

six representative compounds, comparison, 88f

M

Mind genomics experiment, mind of sexuality

introduction, 17

conventional method, 18

test respondents, selection, 19f
Phenol derivatives, importance
conclusions, 115
introduction, 107
materials and methods, 108
phenol derivatives, quantitation, 109
quantitation experiments, selected ions, 110f
results and discussion, 111
intensity of peatiness, contrast of ranking sums, 115f
Islay whiskies, OAVs of phenol and methoxyphenol derivatives, 113f
phenol derivatives in a comparative AEDA, FD factors, 112f
ranking sums, determined ranking sums and differences, 114f

R

Rum made from sugar cane juice,
characterization of the key aroma compounds
experimental section, 292
stable isotope dilution analysis (SIDA), quantitation, 294
stable isotopically labeled standards, 295f
volatiles, isolation, 293
introduction, 291
results and discussion, 297

AEDA on the rum distillate, FD chromatogram obtained, 298f
amino acid-derived acids, 306
amino acid L-isoleucine via the Ehrlich pathway, degradation, 305f
most aroma-active compounds, FD factors, 299t
most important aroma compounds, concentrations, 301f
most important aroma compounds, orthonasal odor thresholds and OAV, 303f
original rum, aroma profile analyses, 304f
rum, aroma profile, 298f

S

Smoky, vanilla, or clove-like
collection, 50
guaiacol and its biosynthesis, 45
guaiacol-derived odorants, individual odor qualities, 50
guaiacol-derived odorants, OTs, 48
halogenated guaiacol derivatives, 49
guaiacol-derived structure compounds and smoky odor, relationship, 45
guaiacol, median OTs and odor qualities, 46f
guaiacol-derived odorants, odor quality, 48f
halogenated guaiacol derivatives, median odor OTs and odor qualities, 47t
introduction, 43
Stir bar sorptive extraction (SBSE), implementation, 311
conclusions, 322
introduction, 312
materials and methods, 314
desorption and cryoconcentration conditions, levels of the factors for the study, 315f
study of extraction conditions, levels of the factors, 314t
results and discussion, 316
chemical profile of Tequila and agave distillates, principal component analysis, 320f
chromatographic peaks, estimated response surface, 317f
EG/silicone bar, estimated response surface, 319f
EG/Silicone bar, extraction, 321
PDMS and EG/silicone bars, extraction and desorption conditions, 319f
PDMS bar, estimated response surface, 318f
stirring rate versus time, estimated response surface, 317f
tequila, chemical profile, 322f
total chromatographic area, estimated response surface, 316f

Tibetan Qingke liquor, aroma comparison, 225
introduction, 226
materials and methods, 227
Chinese baijiu, chemical standard, 231f
defined flavor and alcohol content, Chinese baijiu, 228f
quantification of highly volatile compounds, calibration curves used, 230f
results and discussion, 233
aldehydes, concentration, 245f
17 Chinese baijiu, comparison of OAVs, 248f
esters and acids, concentration, 235f
ketones, concentration, 246f
light-aroma Chinese baijiu, concentration of alcohols, 242f
light-aroma Chinese baijiu, esters and acids, 237f
OAVs, comparison, 249f
OAVs, PCA based, 250f
odor active values (OAVs), 247
other aroma Chinese baijiu, concentration of alcohols, 243f
other aroma styles Chinese baijiu, esters and acids, 239f
strong-aroma Chinese baijiu, concentration of alcohols, 241f
terpenoids, concentration, 244f
summary, 251

W
Wheat beer, formation of desired smoky key odorants, 93
experimental section, 95
volatile vinyl aromatics, quantitation, 96
introduction, 94
commercial wheat beers, published data on styrene concentrations, 95f
results and discussion, 97
one pale and one dark wheat beer, styrene content, 103f
18 pale wheat beers, volatile vinyl aromatics and free phenolic acids, 98f
reduced-alcohol and a nonalcoholic wheat beer, styrene content, 102f
styrene content in beer, effect of the yeast type, 103f
vinyl aromatic concentrations, comparison, 104
vinyl aromatics and phenolic acids, Pearson correlation coefficients, 100f
yeast strain, wheat beer brewed, 101f
Wood-derived organic matter, thermal decomposition
introduction, 55
materials and methods, 56
low boiling fraction, TD-GC×GC-MS analysis, 57
results and discussion, 58
beech condensate, constituents, 60f
GC-MS chromatograms, comparison, 63f
hardwood, thermal decomposition, 64
low boiling fractions, two-dimensional GC chromatograms, 59f
phenolic aroma substances, formation, 62f