

CONTENTS

NOTE TO THE READER	1
LIST OF PARTICIPANTS	3
PREAMBLE	9
A. GENERAL PRINCIPLES AND PROCEDURES	9
1. Background.....	9
2. Objective and scope.....	10
3. Selection of agents for review.....	11
4. Data for the <i>Monographs</i>	12
5. Meeting participants.....	12
6. Working procedures.....	13
B. SCIENTIFIC REVIEW AND EVALUATION	14
1. Exposure data.....	15
2. Studies of cancer in humans.....	16
3. Studies of cancer in experimental animals.....	20
4. Mechanistic and other relevant data.....	23
5. Summary.....	26
6. Evaluation and rationale.....	27
References.....	31
GENERAL REMARKS	33
DRINKING COFFEE	36
1. Exposure Data.....	37
1.1 Identification of the agent.....	37
1.2 Methods of production, uses, and preparation.....	40
1.3 Exposure assessment and biological markers.....	45
1.4 Chemical constituents.....	64
References.....	68

2. Cancer in Humans.	75
2.1 Cancer of the bladder	75
2.2 Cancer of the pancreas	144
2.3 Cancer of the liver	176
2.4 Cancer of the breast in women.	204
2.5 Cancer of the endometrium.	241
2.6 Cancer of the prostate	258
2.7 Cancer of the lung	280
2.8 Cancer of the larynx.	285
2.9 Cancer of the ovary	287
2.10 Childhood cancer	293
2.11 Cancer of the oral cavity and pharynx	297
2.12 Cancer of the oesophagus	299
2.13 Cancer of the stomach, small intestine, gall bladder, and biliary tract.	300
2.14 Cancer of the colorectum.	301
2.15 Cancer of the kidney.	304
2.16 Malignant melanoma	307
2.17 Non-melanoma cancer of the skin	308
2.18 Adult cancer of the brain	308
2.19 Adult haematopoietic cancers	309
2.20 Other cancers	309
2.21 All cancers combined	310
References.	311
3. Cancer in Experimental Animals	335
3.1 Studies of carcinogenicity	335
3.2 Co-carcinogenicity and initiation–promotion studies	340
References.	352
4. Mechanistic and Other Relevant Data	355
4.1 Toxicokinetic data	355
4.2 Mechanisms of carcinogenesis.	364
4.3 Genetic susceptibility	392
4.4 Other effects	395
References.	398
5. Summary of Data Reported	415
5.1 Exposure data.	415
5.2 Human carcinogenicity data	415
5.3 Animal carcinogenicity data	420
5.4 Mechanistic and other relevant data.	421
6. Evaluation	425
6.1 Cancer in humans.	425
6.2 Cancer in experimental animals.	425
6.3 Overall evaluation	425

DRINKING MATE AND VERY HOT BEVERAGES	427
1. Exposure Data	427
1.1 Identification of the agent	427
1.2 Production and use	429
1.3 Production and consumption data	434
1.4 Methods of measurement and exposure assessment	434
2. Cancer in Humans	437
2.1 Mate	437
2.2 Very hot beverages other than mate	449
3. Cancer in Experimental Animals	476
3.1 Mate	476
3.2 Very hot water	478
4. Mechanistic and Other Relevant Data	479
4.1 Absorption, distribution, metabolism, and excretion of mate	479
4.2 Mechanisms of carcinogenesis	480
4.3 Other adverse effects	485
5. Summary of Data Reported	486
5.1 Exposure data	486
5.2 Human carcinogenicity data	487
5.3 Animal carcinogenicity data	488
5.4 Mechanistic and other relevant data	489
6. Evaluation	490
6.1 Cancer in humans	490
6.2 Cancer in experimental animals	490
6.3 Overall evaluation	490
6.4 Rationale	490
References	490
LIST OF ABBREVIATIONS	497

NOTE TO THE READER

The term ‘carcinogenic risk’ in the *IARC Monographs* series is taken to mean that an agent is capable of causing cancer. The *Monographs* evaluate cancer hazards, despite the historical presence of the word ‘risks’ in the title.

Inclusion of an agent in the *Monographs* does not imply that it is a carcinogen, only that the published data have been examined. Equally, the fact that an agent has not yet been evaluated in a *Monograph* does not mean that it is not carcinogenic. Similarly, identification of cancer sites with *sufficient evidence* or *limited evidence* in humans should not be viewed as precluding the possibility that an agent may cause cancer at other sites.

The evaluations of carcinogenic risk are made by international working groups of independent scientists and are qualitative in nature. No recommendation is given for regulation or legislation.

Anyone who is aware of published data that may alter the evaluation of the carcinogenic risk of an agent to humans is encouraged to make this information available to the Section of IARC Monographs, International Agency for Research on Cancer, 150 cours Albert Thomas, 69372 Lyon Cedex 08, France, in order that the agent may be considered for re-evaluation by a future Working Group.

Although every effort is made to prepare the *Monographs* as accurately as possible, mistakes may occur. Readers are requested to communicate any errors to the Section of IARC Monographs, so that corrections can be reported in future volumes.