6th Asia Pacific International Congress of Anatomy (6th APICA) & 13th National Congress of Indonesian Anatomist Association (13th PIN-PAAI)

Proceeding Book

The Future of Anatomy
Clinical Anatomy
Biomolecular and Cellular Anatomy
Anatomy in Radiology and Imaging

GrahaBIK-IPTEKDOK
Faculty of Medicine of Airlangga University
Surabaya, 22nd-23rd July 2011
Indonesia
EDITOR BOARDS

Coordinator:
Viskasari P. Kalanjati, dr, M.Kes, Ph.D

Steering Committee:
Prof. Yun Qing Li
Prof. In-Sun Park, Ph.D
Prof. Madya Dr. Srijit Das
Prof. MT Joghataei
Prof. Maciej Henneberg, MSc (summa cum laude), Ph.D, DSc, FAIBiol
Visiting Prof. Yoshiyuki Tohno
Prof. Gayatri Rath
Prof. H. Ari Gunawan, dr., MS., Ph.D
Prof. Dr. Doddy M. Soebadi, dr, Sp.B, Sp.U(K)
Prof. Win Darmanto, drs., M.Si, PhD

Organizing Committee:
Sudibjo, dr., MS., PA
Subagjo, dr., MS., PA
R. Moch. Wirono AS, dr., MS., PA
Hj. Prijati Sri rawati, dr., MS
F.X. Tjatnrisanto Hudyono, dr., MS., PA
Haryanto Alimardjono, dr., PA
Ni Wajan Tirthaningsih, dr., MS., PA
Hj. Iskantiyah Budi Rahardjo, dr., MS., PA
Hj. Sri Amindariati, dr., MS., PA
H. Cl. irul Anwar, drh., MS
Dr. Widijati, drh, Msi
Myrtati Dyah Artaria, dra, MA., Ph.D
Rina Susilowati, dr, Ph.D
Susy Kristiani, drg, M.Kes
Epy Muhammad Luqman, drh, M.Kes
Joni Susanto, dr., M.Kes
Annisaa Chusida, dgrg, M.Kes
Dr. H. Abdurachman, dr., M.Kes., PA(K)
Dr. Eka Pramyrtha Hestianah, drh., M.Kes
Dr. Pratiwi Soesilowati, dgrg, M.Kes, PA
Dr., Dra. Toetie Koesbardiati
Dra. Tania Ardiani Saleh Hariadi, MS
Tri Harfni Yuliawati, dr, M.Ked
Sakina, dr
Rimbun, dr
Desy Purwidyastuti, dr
Lucky Prasetyawati, dr
Dewi Ratna Sari, dr
Kusuma Eko Purwantari, dr
Arni Kusuma Dewi, dr
Assalamu’alaikum wr wb,
Bismillahirrahmaanirrahiim,

This Proceeding Book contains abstract and full papers of speakers and participants of 6th APICA-13th IAA Congress that is held on the 22nd-23rd of July, 2011 in Faculty of Medicine, Airlangga University, Surabaya, Indonesia. This special congress is a mix of national and international conferences, which speakers and participants come from various countries including Indonesia, Japan, China, South Korea, Singapore, Malaysia, Thailand, Turkey, Iran, Uzbekistan, India, Australia and USA. The Editor Boards of this Proceeding Book are also a mix between national and international reviewers from these countries. Future of Anatomy is chosen as the main theme of this congress with sub-themes array from Clinical Anatomy, Biomolecular and Cellular Anatomy and Anatomy in Radiology and Imaging.

Anatomy is a fast-growing scientific field, closely related to an ongoing development in research and technology, especially in radiology and imaging. Anatomy has a pivotal role to understand the pathophysiology of the diseases to do just and prompt prevention, diagnostic and therapeutic; whilst in other areas it is needed to understand a variety of biological phenomenon and then to solve the problems occur. We do hope this Proceeding Book meets its aim to cover manuscripts presented orally and/or as scientific posters in the congress, as a high quality-standardised, nationally and internationally accredited Proceeding Book.

I would like to thank to Ministry of National Education, Rector of Airlangga University, Dean and Staff of Faculty of Medicine, Airlangga University for your kind help and attention. Great appreciation to IDI (Ikatan Dokter Indonesia) Jawa Timur, IAA-PAAI (Perhimpunan Ahli Anatomi Indonesia) and APICA members. Thank you very much to all committee members, speakers, moderators, juries, editor boards, sponsors and participants of 6th APICA-13th IAA Congress for your kind contributions. Thanks to Allah SWT for absolutely everything.

Sincerely Yours,

Viskasari P. Kalamjanti, Dr., M.Kes., PhD (UQ)
Vice Chairman II of 6th APICA-13th IAA Congress
Coordinator of Editor Boards
FOREWORD FROM EXECUTIVE COMMITTEE OF APICA

This proceeding book is a compilation of the papers/abstracts that have been presented at the 6th Asia-Pacific International Congress of Anatomy (6th APICA) & 13th National Congress of Indonesian Anatomist Association (13th PIN-PAAI) which was held on the 22nd - 23rd of July, 2011 in Surabaya, Indonesia.

The aims of this congress are: (1) to promote anatomy and research in clinical use to solve health problems through open-sharing of skills and knowledge amongst participants and lecturers; and (2) to nurture networking between individuals and/or institutions for better teaching, learning and research in anatomy and its branch fields. The scientific program covered Clinical anatomy, Biomolecular and Cellular Anatomy and Anatomy in Radiology and Imaging. It aimed to narrow the knowledge gap and to bridge differences in study of anatomical sciences between different nations. Along with the highly development of life science, the novel technique and methods promote the development of anatomy, and bring new opportunities and challenges to this old subject. I believe this wonderful congress would have greatly promoted the academic communications and improved the development of anatomical sciences in Asia-Pacific region.

I wish to express our utmost gratitude to the local organizers and all speakers at the conference and especially to those who have allocated time and effort to prepare their papers/abstracts for this publication. I am sure all delegates at the meeting and readers of this proceedings book will be enriched by the expertise, knowledge and wisdom that have or are being shared. I am also very glad to take this opportunity to invite you to attend the 18th International Congress of International Federation of Associations of Anatomists (IFAA) to be held in Beijing, 2014. All of you will be greatly welcomed.

Yun-Qing Li
On behalf of the Executive Committee of the 6th APICA-13th IAA Congress
President of Chinese Society for Anatomical Sciences
Director of Department of Anatomy, Histology and Embryology, the Fourth Military Medical University, China
FOREWORD FROM GENERAL CHAIRMAN OF INDONESIAN ANATOMIST ASSOCIATION (KETUA PB PAAI)

Assalamualaikum wr wb,
Anatomy is very important because of its role as the medical basic sciences. In the course of science, anatomy evolved into clinical anatomy, cellular and biomolecular anatomy, and anatomy in radiology and imaging. As one of the means in order to contribute to develop anatomy, Indonesian Anatomist held a scientific meeting every year. In addition to scientific meetings, the Indonesian Anatomist also held a congress every three years. Currently Indonesian Anatomist held the 13th congress. 13th Congress is also held in conjunction with a scientific meeting. In order to further expand its development towards an international congress, Indonesian Anatomist is pleased to host the 6th Asian-Pacific International Congress of Anatomist. The theme of national and international scientific meetings in this congress is: The Future of Anatomy with sub-themes; clinical anatomy, cellular and biomolecular anatomy, and anatomy in radiology and imaging. We hope that all participants are capable of acquiring significant benefits. Similarly, what is produced in the congress and scientific meeting is able to give an important contribution to the future of anatomy. Congratulations and good conduct of congress and scientific meeting.
Thank you very much.
Wassalamualaikum wr wb

Surabaya, 22/07/2011
General chairman of Indonesian Anatomist Association
Dr. H. Abdurachman, dr., M.Kes., PA(K)
<table>
<thead>
<tr>
<th>Title of manuscript:</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The development of anatomy in china through professional scientific organization</td>
<td>1</td>
</tr>
<tr>
<td>Y.-Q. Li</td>
<td></td>
</tr>
<tr>
<td>Imaging synapses in vitro and in vivo</td>
<td>2</td>
</tr>
<tr>
<td>Shigeo Okabe</td>
<td></td>
</tr>
<tr>
<td>Radiology-aided teaching for gross anatomy in digital era</td>
<td>3</td>
</tr>
<tr>
<td>Paulus Rahardjo</td>
<td></td>
</tr>
<tr>
<td>A multi modal virtual anatomy learning tool for medical education</td>
<td>5</td>
</tr>
<tr>
<td>Ponnampalam Gopalakrishnakone, Lu Jianfeng, Goh Poh Sun, Hunfuko Asanka</td>
<td></td>
</tr>
<tr>
<td>Abeykoon, Owen Noel, Newton Fernando, Adrian Cheok</td>
<td></td>
</tr>
<tr>
<td>Functional neural stem cells with high differentiation potential in CNS injury model</td>
<td>9</td>
</tr>
<tr>
<td>Jong Eun Lee</td>
<td></td>
</tr>
<tr>
<td>GABA&lt;sub&gt;A&lt;/sub&gt; (gamma-Aminobutyric Acid-A) receptor subunit protein expression and</td>
<td>11</td>
</tr>
<tr>
<td>distribution in piglet brain across the perinatal period</td>
<td></td>
</tr>
<tr>
<td>Viskasari P. Kalanjati, MD., M.Kes., Ph.D., Paul B. Colditz, Professor,</td>
<td></td>
</tr>
<tr>
<td>Stella T. Bjorkman, BSc. (Hons), Ph.D.</td>
<td></td>
</tr>
<tr>
<td>Spinal repair and advance research for spinal cord injury</td>
<td>17</td>
</tr>
<tr>
<td>Joghataei MT, Ph.D, Delaviz H, Ph.D , Pourheydar B, Ph.D, Azizi M, M.Sc,</td>
<td></td>
</tr>
<tr>
<td>Zendedel A, M.Sc, Eftekhari S, M.D</td>
<td></td>
</tr>
<tr>
<td>How to predict eloquence area in order to avoid therisks of postoperative</td>
<td>28</td>
</tr>
<tr>
<td>permanent deficits in glioma surgery</td>
<td></td>
</tr>
<tr>
<td>Abdul Hafid Bajamal, Jony Wahyuhadi , Rahadian Indarto Susilo ,</td>
<td></td>
</tr>
<tr>
<td>Sri Andreani Oetomo, Hamzah</td>
<td></td>
</tr>
<tr>
<td>The less travelled road: application of neurohistological techniques in the studies</td>
<td>30</td>
</tr>
<tr>
<td>of non-mammalian neural tissue</td>
<td></td>
</tr>
<tr>
<td>Hasan Adli, D.S</td>
<td></td>
</tr>
<tr>
<td>Convergence of visceral and somatic sensory information in the sacral cord:</td>
<td>30</td>
</tr>
<tr>
<td>morphologic evidence for referred pain</td>
<td></td>
</tr>
<tr>
<td>Y.-Q. Li, M.-M, Zhang, Z.-Z. Kou</td>
<td></td>
</tr>
</tbody>
</table>
* Gender differences in elements of human brain regions
  Yoshiyuki Tohno, Setsuko Tohno, Nutcharin Ongkana, Patipath Suwannahoy,
  Apichat Sinthubua, Pasuk Mahakanukrauh, Lining Ke, and Takeshi Minami .......................... 31

* The role of anatomy in supporting medical sciences
  Ari gunawan ......................................................................................................................... 32

* Active research in anatomy: do we really care for the needy?
  Srijit Das ............................................................................................................................. 35

* Teaching and learning clinical anatomy
  Christopher a. Briggs ........................................................................................................... 36

* Mineral bone disorder in haemodialysis patients: A continuing challenge in
  Soetomo Hospital
  Djoko Santoso, Nira Pambudi ............................................................................................. 38

* Advanced clinical applied anatomy of the heart in pediatric. The *anatomical* basis
  of clinical practice.
  Tedy Ontoseno ..................................................................................................................... 46

* Morphogenic factors and their roles in the pancreatic regeneration
  I-SPark .................................................................................................................................. 51

* New era in sperm selection for treatment of male infertility
  Nast-Esfahani, MH (Ph.D) ...................................................................................................... 52

* The role of in vitro fertilization embryonic protein biomarkers (SHLA-G), in
  precocious diagnosis embryonic implantation potential, compare with
  morphological landmarks
  Heidari MH, Ghaffari Novin M., Ahmadi F., Khoshrad M., Salehpour S., Bloki A.,
  Heidari M., Eimi Sato ........................................................................................................... 53

* Role of VEGFR-2 in pregnancies complicated by hypertensive disorders:
  Indian scenario
  Rath Gayatri, Tripathi Richa, Ralhan R, Saxena S, Salhan Sudha ........................................ 54

* Clinical gross anatomy research
  Professor Pasuk Mahakanukrauh, MD .................................................................................. 68

* Changing frequencies of anatomical variants may pose clinical problems
  Henneberg Maciej .................................................................................................................. 69

* Reconstruction of face from the skull
  Artaria, M. D. ......................................................................................................................... 75

* The therapy effect of motor imagery on arm motoric improvement by using
  the score of *Action Research Arm Test* (ARAT) on the acute ischemic stroke patients
  Basri M Iqbal, Alih A, Akbar M, Muis A, Kaelan C, Bahar B ............................................... 78

* Comparative study on pancreatic beta-cells of alloxan induced mice treated
  by Sambiloto leaf extract (*Andrographis paniculata* (*birm. F.*) *Nees*) and jamu “D”
  Ratnawati H, Rosnaeni, Putri Fanny K .................................................................................. 79
• The effect of erector spine muscle strength and bone mass density on the low back pain incidence in post-menopausal women
  Maria regina rachmawati ................................................................. 80

• Low serum PI GF levels in late second trimester can act as biomarker for predicting IUGR in pregnancies complicated by preeclampsia
  Raheja S, Ghosh SK, Tuli A, Raghunandan C, Agarwal S ........................................... 81

• A limited study of the genotype-phenotype correlation in cutaneous adverse drug reaction among epileptic patient treated with carbamazepine
  Ratnaningrum SD, Rani ZZ, Then SM, Jamal Ara, Faradz SMH ........................................ 82

• Clinical importance of duodenal recesses with special reference to internal hernias
  Rana KK, Tambe SV, Kakar AK, Kakar S, Aggarwal A, Aggarwal SK .......................... 86

• Adiponectin as a marker of preeclampsia
  Tuli A, Dixit SG, Mishra I, Kakar S ........................................................................ 89

• Persistent median artery: contribution to palmar arches and relationship to median nerve
  Eid N, Ito Y, Otsuki Y ......................................................................................... 90

• Breaking the traditional model of learning medical sciences for nurses
  Hassan H, Rajen Durai RP, Panduragan SL, Mat S .................................................. 91

• Y chromosome abnormality in patients with disorders of sex development
  Wasilah S, Winarni T.I, Faradz S.M.H ................................................................. 92

• The impact of manual material handling tasks on low back pain
  Harrianto R, Samara D, Tjhin P, Wartono M ............................................................ 97

• A cranial porotic hyperostosis case on neolithic Melolo human remains, Sumba island: biological anthropology, paleopathological, and bioarchaeological perspective
  Suriyanto RA, Koesbardiati T ........................................................................... 103

• The size of chick embryo was reduced by the exposure of Epiallocatechin-3-Gallate (EGCG) in ovo
  Rahayu.ID, Djadi, MS, Indra,MR ........................................................................ 116

• Cell-free fetal DNA (cffDNA) in maternal blood for prenatal test
  Arijana I G K N, Sugirinta IW, Linawati N M, Ratnayanti I G A D ....................... 117

• The role of parasympathetic nerve in management of overactive bladder
  Brodjonegoro SR, Singodimedjo P ................................................................. 118

• Surgical anatomy of porta heptatis and intra hepatic branching pattern of portal vein in left lobe of liver.

• Student perception on clinical anatomy elective module using cadaver dissection approaches in Gadjah Mada University
  Budiharjo S, Ratnasari DC, Prakosa D, Romi MM, Yunus J ........................................ 120
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pain management with acupuncture method in knee osteoarthritis patients at Darma Bakti Acupuncture Clinic</td>
<td>121</td>
</tr>
<tr>
<td>Khiong K., Darsono I.</td>
<td>122</td>
</tr>
<tr>
<td>The anti-colitis effect of broccoli steam in ulcerative colitis mice model</td>
<td>123</td>
</tr>
<tr>
<td>Soeng Sylvia, Oeij Anindita Adhika, Elia Wirastuti</td>
<td>124</td>
</tr>
<tr>
<td>The role of cigarette in periodontal tissues changes</td>
<td>125</td>
</tr>
<tr>
<td>Kaseke M. M.</td>
<td>126</td>
</tr>
<tr>
<td>Growth hormone treatment reduces plasma total cholesterol of dyslipidemic rat</td>
<td>127</td>
</tr>
<tr>
<td>Mayun IGN, Ratnayanti IGAD, Wahyuniar IAI</td>
<td>128</td>
</tr>
<tr>
<td>The effect of simvastatin and fenofibrate on the diameter of soleus muscles in the dyslipidemia ratus norvegicus</td>
<td>129</td>
</tr>
<tr>
<td>Soegengono A, Djulaehaningsih, Yenti P</td>
<td>130</td>
</tr>
<tr>
<td>Aplication direct pulp capping Stolephorus insularis cream to dentin reparatif</td>
<td>131</td>
</tr>
<tr>
<td>Sari RP, Reviandi S, Nugroho HK</td>
<td>132</td>
</tr>
<tr>
<td>Longitudinal parameters of the spine column of 3 age group</td>
<td>133</td>
</tr>
<tr>
<td>Teshaev Sh., Shirinov Dj., Ahmedov AT</td>
<td>134</td>
</tr>
<tr>
<td>Learning anatomy under the new competency-based curriculum</td>
<td>135</td>
</tr>
<tr>
<td>Nurul Hidayati</td>
<td>136</td>
</tr>
<tr>
<td>Correlation between number of astrocytes in CA1 hippocampus and working memory after chronic stress</td>
<td>137</td>
</tr>
<tr>
<td>Wiyono N, Aswin S, Harijadi</td>
<td>138</td>
</tr>
<tr>
<td>Mice (mus musculus) as an animal model on study of teratology on the research of nicotine</td>
<td>139</td>
</tr>
<tr>
<td>Poernomo BS</td>
<td>140</td>
</tr>
<tr>
<td>Mast cell mesentery population in infant rats; model for mast cell's biological behaviour studies</td>
<td>141</td>
</tr>
<tr>
<td>Rosita R</td>
<td>142</td>
</tr>
<tr>
<td>Alteration of testicular microanatomical parameters in experimental type 1 and type 2 diabetic rat</td>
<td>143</td>
</tr>
<tr>
<td>Behnam-Rassouli M, Rooholamin S, Mahdavi-Shahri N, Dehghani H</td>
<td>144</td>
</tr>
<tr>
<td>The effect of Electroacupuncture (EA) on working memory and the number of pyramidalis neurons CA1 hippocampus in the rat induced chronic stress</td>
<td>145</td>
</tr>
<tr>
<td>Handayani S, Wiyono N</td>
<td>146</td>
</tr>
<tr>
<td>Effect of oral-estrogen conjugate on b-lymphocyte proliferation of the peyer's patches of adult female BALB/C mice ileum</td>
<td>147</td>
</tr>
<tr>
<td>Kalanjati VP, Susanto J, Yuliawati TH</td>
<td>148</td>
</tr>
</tbody>
</table>
• The site action of curcumin on steroidogenesis leydig cell *Rattus norvegicus* after HCG stimulation with theophylline addition
  Khatimah H, Suryadi E, Soejono SK ................................................................. 155

• *Kelor* (*M. oleifera*) leaf powder increase brain superoxide dismutase activity level in malnutrition rat
  Oski Illiandri ................................................................. 159

• Histocompatibility test of gypsum and gypsum in combination with carbonated hydroxyapatite bone substitutes implanted in subcutaneous tissue
  Listyarifah D, Susilowati R, Ana ID ................................................................. 163

• Antioxidative capability of symbiotic yoghurt in liver and kidney tissues of rats: an immunohistochemical study
  Wresdiyati T, Arif II, Mariska S, Rahayu WP, Astawan M ........................................ 168

• The role of NRF2 in cellular senescence
  Ratmayanti G A D, Mayun I G N, Arijanal G K N .......................................................... 177

• Tooth eruption and alveolar bone growth of offspring of diabetes mellitus rats with calcium carbonate supplementation and insulin therapy
  Larnani S, Lestariana W, Pudyani PS ................................................................. 178

• Changes in number and diameter of muscle fiber number of gastrocnemius and soleus in rats aged 1 day, 3 months, and 12 months
  Sidharta VM ................................................................. 184

• The expression of the C-kit protein in the germline of a marsupial
  Wijayanti GE, G. Shaw, M B Renfree ................................................................. 185

• The effect consumption tomato fruit extract on prevention of embryonic malformation of the rat after is given ethanol
  Suryadi E, Rodiani ................................................................. 190

• Lack of BRCA1 expression in breast cancer
  Purnomosari D, Fitriani Z, Iraniwiati ................................................................. 191

• Comparison of various cell suspension ages on the result of the simple spot method
  Pawitan JA, Damayanti I ................................................................. 192

• The study of quantitative and qualitative characteristics of feeder layer (embryonic feeding layer) produced by mouse cumulus cells as compare with feeder layer produced by embryonic somatic cells.

• Expression of PROX1 is regulated by the osmolarity in mouse kidney
  Kim YM, Kim WY, Park EY, Nam SA, Kim J ................................................................. 194

• The effect of ethanolic extract of *Centella asiatica* spatial memory post-electric-stress study in rats (*Rattus norvegicus*) by the dose of 300 mg/kg/day for 4 and 6 weeks
  Ratna Sari DC, Utami DK, Aswin S, Suhamri S ................................................................. 195
<table>
<thead>
<tr>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Influence of hyperactivity treatment at the collagenous tissue density of the muscle attachment on long bones during growth</td>
<td>196</td>
</tr>
<tr>
<td>Boer HA</td>
<td></td>
</tr>
<tr>
<td>Anatomical variations of the V2 segment of the vertebral artery using dry bones</td>
<td>197</td>
</tr>
<tr>
<td>Chanapa P, Mahakanukrauh P</td>
<td></td>
</tr>
<tr>
<td>Gender differences in the phosphorus content of the sino-atrial nodes and other cardiac regions of monkeys</td>
<td>202</td>
</tr>
<tr>
<td>Tohno S, Tohno Y, Mahakanukrauh P</td>
<td></td>
</tr>
<tr>
<td>Review: Interaction between p53 as the guardian of genome and autophagy as the guardian of proteome in cancer prevention</td>
<td>203</td>
</tr>
<tr>
<td>Wargasetia TL, Melinda H</td>
<td></td>
</tr>
<tr>
<td>A view of dermatoglyphics patterns of finger tip and palmar of patient with essential hypertension at Ulin Hospital Banjarmasin</td>
<td>204</td>
</tr>
<tr>
<td>Rosida L, Khatimah H</td>
<td></td>
</tr>
<tr>
<td>Atlanto-occipital assimilation in Thai skulls</td>
<td>205</td>
</tr>
<tr>
<td>Ongkana N, Sudwan P, Araratana A</td>
<td></td>
</tr>
<tr>
<td>A study of effect intra spinal transplantation of oligodendrocyte like-driven bone marrow stromal cells into contusion spinal cord injury in rat</td>
<td>206</td>
</tr>
<tr>
<td>Kaka GR</td>
<td></td>
</tr>
<tr>
<td>The decreasing effect of Jambolan's (Syzygium cumminii l. Skeels) bark and seed ethanolic extract in blood sugar level in aloxan-induced diabetic mice model</td>
<td>207</td>
</tr>
<tr>
<td>Utami SS, Muchtan S</td>
<td></td>
</tr>
<tr>
<td>Stereological study of methimazole-induced adrenal atrophy</td>
<td>208</td>
</tr>
<tr>
<td>Dehghani F, Zabolizadeh J, Noorafshan A, Panjehshahin MR, Karbalae -doust S ..</td>
<td></td>
</tr>
<tr>
<td>Strategies for basic research and animal model of stress on brain and sexual behavior</td>
<td>209</td>
</tr>
<tr>
<td>Arjadi F</td>
<td></td>
</tr>
<tr>
<td>The effect of isoflavones in combination with calciuimand D3 to Sex Hormone Binding Globulin (SHBG)level in Indonesian Older Women (IOW)</td>
<td>210</td>
</tr>
<tr>
<td>Parwanto E, Senjaya H, Tjahjadi D</td>
<td></td>
</tr>
<tr>
<td>Immunological problem in children with Down Syndrome</td>
<td>211</td>
</tr>
<tr>
<td>Sunilamingsih N, Armalina D</td>
<td></td>
</tr>
<tr>
<td>Curcumin reduces cell infiltration in collagen – induced arthritis</td>
<td>216</td>
</tr>
<tr>
<td>Kamarudin TA, Mohd Ramli ES, Othman F, Das S, MD Isa N, Abd Hamid H</td>
<td></td>
</tr>
<tr>
<td>Fingerprint pattern in schizophrenic patient</td>
<td>217</td>
</tr>
<tr>
<td>Sumaningtyas J, Wiyono N, Tamtomo D, Handayani S</td>
<td></td>
</tr>
<tr>
<td>A novel animal model for studying pressure ulcers induced by repeated compression of the rat abdominal wall using magnets</td>
<td>218</td>
</tr>
<tr>
<td>Kawamata S, Kurose T</td>
<td></td>
</tr>
</tbody>
</table>
• Transgenic neural stem/progenitor cells transplantation therapy promotes neurological functional recovery and neurogenesis after experimental stroke. Kim JY, Kumar BK, Hur BE, Park KA, Lee WT, Lee JE .......................... 219

• Right-sided aortic arch with the retroesophageal left subclavian artery as the fourth branch Chai OH, HT Kim, CHSong, EHHan, YK Kim, HL Zhao ........................................ 220

• The attitudes of nursing students towards anatomy learning in the dissecting room Song CH, HT Kim, OHChai, YKKim, HL Zhao, EH Han ........................................ 221

• The differences between male and female skulls in several anthropometric measurements Setianingsih H, Artaria MD ................................................................. 222

• Adapting the 3D method into 2D method facial reconstruction Arining sis FN, Nuringtyas M, Paramita PDA, Artaria MD ........................................ 224

• Differences in anthropometric measurements at the skull and face of Austromelanesoid and Mongoloid: a preliminary study ArtariaMD ........................................................................ 225

• Influence of administration of Curcuma longa linn extract to estradiol and progesterone levels of female white rat (Rattus norvegicus) Amir A, Bukit RB ................................................................. 229

• The regionalization of trunk in a chick embryo: ontogenesis of the trunk muscles and the axial skeleton from the somites Aoyama H, Maeda K, Masuda T, Sakamoto N ........................................ 230

• Biologic roles of VDACS protein in spermatozoa motility Susmiarshi T ........................................................................ 231

• The association of the oxidative damage DNA with the dysfunction of endothelium on diabetic patients Yanwirasti, YerizeIE ........................................................................ 232

• Quality of life and toxicity in breast cancer using adjuvant docetaxel, doxorubicin, cyclophosphamide (TAC) or doxorubicin, cyclophosphamide, 5-fluouracil (FAC) Hatam N, Ahmadloo N, Daliri AAK, Bastani P ........................................ 233

• The effect of Pandanus conoides lam. oil on lipid profiles in diabetic rat Winarto ........................................................................ 234

• The promotermethylation of e-chaderin (CDH1) in children with acute lymphoblastic leukemia and non-malignant diseases Fidianingsih I, Supriyadi E, Purnomosari D ........................................ 235

• Morphology preview of extremities on students of SLBCBanjarmasin – Kalimantan Selatan Panghiyangani R, Wasilah S, Fauziannoor A ........................................................................ 240

• LDL, OXLDL, RANKL as predictor factordecrease bone mineral density in osteoporosis Rafiah S, Rieuwpassa I, Bahrun U, Datu AR ........................................................................ 245
- Innervations of the fourth cervical nerve fibers contributed to the brachial plexus
  Lee KS, Hur MS, Woo JS ........................................................ 250

- Characterization and prognostic value of mutations in exons 5 and 6 of the p53
gene in patients with colorectal cancers Central Iran
  Golmohammadi R, Namazi MJ .............................................. 251

- Shorter telomeres and the risk of dementia in individuals with Down Syndrome
  Armalina D ................................................................. 252

- Nursing students’ perception and experience of teaching and learning medical
  science subjects
  Dural RPR, Hassan H, Panduragan SL, Mat S .................................. 255

- The effect of Carthamus tinctorius on spermatogenesis, sperm quality and sex
  hormone level in busulfan treated male rats as an subfertile model
  Bahmanpour S, Vojdani V, Panjehshahin MR, Hoballah H, Kassas H ............ 256

- Biological aspects of waria
  Karmaya INM ............................................................... 257

- Anatomical changes in alveolar bone in periodontitis
  Rieuwpassa IE, Raffah S, Lisal JJ, I Wayan SA ................................ 260

- The cost efficiency of breast cancer screening in comparision with breast cancer
  therapy
  Keshtkar V, Hatam N, Rafiee HR ........................................... 265

- Effect of ascorbic acid and garlic extract on lead-induced changes of bone
  mineralization in rat newborn
  Sadeghi A, Alipour F, Kianmehr M, Hami J, Bideskan Are ......................... 266

- The effect of purple nut sedge (Cyperus rotundus L.) tuber chloroform extract to
  apoptosis on HeLA cell
  Susianti, Susilowati, Wahyuningsih MSH ........................................ 267

- Protective effect of curcumin on the aorta of experimental rats fed with heated
  palm oil: biochemical and morphological perspectives
  Othman F, Aziz Nua, Das S, Yusof K, JaarInK .................................. 268

- The histology study of interrenal and chromaffin cells in great sturgeon
  Parto P, Charmi A, Bahmani M, Sajjadi MM, Kazemi R .......................... 269

- 5-aza deoxyctidine and trichostatin a induce cardiomyocytes marker expression
  in mouse embryonic fibroblasts
  Talaei-kozani T, Haidari F, Esmaeilpour T, Vojdani Z, Mostafavipour Z, Rohani l ... 270

- Microscopic study of the pharynx in ostrich
  Poost Pasand A, Tadjalli M, Mansouri SH ..................................... 271

- Lectins influence on chondrogenesis and osteogenesis of limb buds mesenchymal
  cells
  Malihezaman M, Tahereh T, Mansoureh G ......................................... 272
• Immunohistochemical study of type III collagen expression during rat skin morphogenesis
  Ebrahimzadeh Bideskan AR, Mhammadzadeh E, Nikravesh MR, Jalali M, Fazel AR ........................................ 273

• Leptin resistance enhance nonalcoholic steatohepatitis (nash)
  Dewi AK .......................................................................................................................... 274

• Study of effects of vitamin D hypervitaminosis on tissue of ovary in mouse.
  Jafarpour S, Jafarpour M ................................................................. 278

• Study of effects of morphines injection on tissue of ovary and pregnancy in mouse.
  Jafarpour M, Jafarpour S ........................................................................... 279

• Immunohistochemical study of formaldehyde effect on BALB/C mouse spermatogenesis by using PCNA method
  Jalali M, Nikravesh MR .................................................................................. 280

• Inductive role of type IV collagen during nephrogenesis in mouse fetuses
  Nikravesh MR, Jalali M, Moeen AA, Karimfar MH, Rafighdoost H .......................... 281

• Histological study of testicular tissue in newborn mice exposed to 50 hz electromagnetic field during developmental period
  Soleimanirad J, Roshangar L, Khaki AA, Hamdi BA .................................................. 282

• Features of lipolysis present in the retroperitoneal adipocytes of the adrenalectomised rat treated with piper sarmentosum: an ultrastructure study
  Fairus A, Ima NS, Elvy Suhana MR, Tan MH, Farihah HS ........................................ 283

• Identification of HY antigen at tissue of testis histology and mice spleen
  (Mus musculus) with immunohistochemistry methods
  Suryani MI, Widjati, Samik A, Hariadi M .............................................................. 284

• Immunohistochemical study of endocrine cells in the gastrointestinal tract of barbary sheep (Ammotragus lervia)
  Pyarokhil AH, Ishihar M, Sasaki M, Kitamura N ............................................... 289

• Combination of prednisolone and interleukin-4 protect bovine nasal cartilage against interleukin-1 effects
  Orazizadeh M, Yadegari M, Hashemitabar M, Khodadadi A .................................. 290

• Sterno cleidomastoid motor neuron somata in the cervical spinal cord of rat — a horseradish peroxidase study
  Ullah M, Kapitonova M, Yu, Fuad S B S A, Shwe N ................................................ 291

• The effect of phenytoin and phenobarbital on microscopic gingival rat
  (Ratus norvegicus) strain wistar.
  Fidy ......................................................... 292

• MTHFR and MTR gene polymorphism as maternal risk factors for Down Syndrome
  Dewi PK, Armalina D .......................................................................................... 297
- The effect of Virgin Coconut Oil (VCO) and povidone iodine on the density of collagen and wound contraction in wound healing process in rats
  Darwin E, Jamil M .................................................. 301

- Piper sarmentosum reduced the expression and increased dehydrogenase activity of 11β-hydroxysteroid dehydrogenase in the bones of dexamethasone treated adrenalectomised rats
  Ramli ESM, Soelaiman IN, Othman F, Ahmad F, Shuid AN, Mohamed N, Muhammad N, Suhaimi F .......................................................... 306

- Gene expression profiles of pressure ulcers; focus on inflammatory cytokines
  Kurase T, Kawamata .............................................. 307

- Genetic diversity of Merozoite Surface Protein-1 (MSP-1) in Plasmodium falciparum field isolates from a mountain and coastal area in West Sumatera, Indonesia
  Irawati N .............................................................. 308

- The effect of the homo- and heterotypic stressors on the immunoarchitecture of the central and peripheral lymphoid organs
  Kapitonova M Yu, Kuznetsova SL, Ullah M, Nor-Ashikin MNK, Fuad SBSA, Shiwe N, Khlebnikov Yu V, Khodolov AV, Fokina EN, Chernov DA .......................................................... 309

- Survey of raloxifene effect on human endometriotic tissue cultured in three-dimensional fibrin matrix
  Khazaei M, Gorbani R, Ranjbar van P, Ghanbari A, Khazaei S ............................................................ 310

- BMPs regulate neural cells in traumatic spinal cord injury by agmatine
  Park YM, Seo SK, Moon SU, Lee YO, Park KA, Lee JE, Lee WT .......................................................... 311

- Regulation of endothelial cell migration by metabolite of arginine
  Jung HJ, Jeon YH, Mun CH, Lee WT, Lee JE, Park KA .......................................................... 312

- Microscopic appearance of lungs, testis, and blood level influence of exposed male BALB/C mice in the highway
  Wijjahro R B, Armalina D .......................................................... 313

- Bisphenol A interferes with pubertal development of ovary
  Kassim NM, Khan NLA, Ismail R .................................................. 317

- Effect of Gynura procumbens (lour.) Merr to the appearance of mammae glands tumor inoculated in C3H mice
  Ismail A .............................................................. 318

- Effect of increasing blood glucose concentration into some atherogenic factors with biomolecular study among diabetes mellitus type 2 patients
  Yerizel E .............................................................. 318

- Glycoprotein (GP) 2 as an important marker of microfold (M) cells
  Linawati N M, Mayuni G N, Wahyuniari I A I, Sri Wiryawan I G N .................................................. 323

- Identification of authentically prophesy variable norm of psychophysical activity that may prevent the initiating activation of Nuclear Factor-KB in osteoarthritis
  Zain M S B .............................................................. 324
- Phenotypic evaluation of corneal cells culture in edible bird’s nest (EBN)-enriched medium
  Abd Ghafar N, Zainal Abidin F, NG SL, Ramli ESM, Chua KH ........................................ 325

- Detection and phylogenetic analysis of Mycobacterium leprae in prehistoric skull bone from Lewoleba, Flores Island-Lembata Indonesia based on TTC regions

- Correlation studies of Ki-67, progesteron receptors and vascular endothelial growth factor immunostaining with histopathological grade of meningioma

- Distribution of collagen in the postnatal and aging rat lung
  Margiana R, Liem IK, Pawitan JA ........................................ 334

- Effect of soybean nonblood glucose levels and heavy organ in alloxan induced diabetic rats
  Mustofa MS, Mukhtar D, Susmiarlsih T, Royhan A ........................................ 335

- New evidence of Mycobacterium leprae in Indonesian ancient human skeletal remains: a new clue of modern human dispersal in Indonesia?
  Koesbardati T, Murti DB ........................................ 336

- Contribution of binahong (Anredera cordifolia) to inflammation cell and fibroblast cell in medication of sports injury
  Sumartiningisih S ........................................ 341

- The role of eosinophils in asthma bronchial (a study of literature)
  Nadeak B ........................................ 342

- Effect of non-competitive antagonist NMDA receptors (n-methyl-d-aspartate), MK-801, on NR2B subunit expression of NMDA receptors in neuropathic pain management
  Indiastuti DN, Yuliawati TH, Khotib J ........................................ 348

- The effect of epigallocatechin-3-gallat (EGCG) and epigallocatechin (EGC) in green tea on weight loss, leukocytes proliferation and histological features of colon in dss-induced colitis Swiss Webster male mice
  Dewi K, Khiong K ........................................ 355

- The role of Stat3 in cancer inflammation and immunity
  Adhika OA ........................................ 356

- Morphometric study of the effects of Elaeagnus angustifolia fruit on chondrogenesis and osteogenesis in mouse embryo
  Vojdani Z, Talaeikhozami T, Dehghani F, Heidari E, Kharazi E, Panjehshahin MR ........................................ 357

- Assessing parameters influencing the isolation of multipotent mesenchymal stromal cells from human umbilical cord
  Vassaghi A, Dehghani A, Khademolhosseini Z, Attar A, Maharlooeei MK, Monabati A ........................................ 358
- A comparative study on nissl bodies within motor cortex of newborn mice borne with cesarean section and normal vaginal delivery
  Tayyebeh K, Reza SA ................................................................. 359

- The effect of temperature and time on survival of postmortem pancreatic islet cells in BALB/C male mouse
  Shiasi M, Mansouri K, Ghorbani R ................................................... 360

- Distribution of glicoconjugate in the olfactory bulb of the fruit bat (Rousettus amplexicaudatus): lectin histochemistry
  Kusindarta DL, Pangesta DB, Aquaristaputra FR, Danurwendo W ..................... 361

- Amelogenin, a major structural protein in the developing tooth enamel is expressed in the rat developing hair follicle
  Kang JH, CheongNR, Yoo Hi, Lee GH, Yang SY, MoonJS, Kim MS, Kim SH .......... 362

- The comparison of the m16 and human tubal fluid (HTF) media use and their effect on the fertility rate and developmental block of mouse embryos (cell block)
  Widjati, Pusporini SE, ArifinZ ....................................................... 363

- A descriptive study: morphometry radiology anatomy of cervical spine pedicles for accuracy of pedicle screw insertion in the cervical spine
  Setiawan PGB, Kasaba A, Subagio EA, Rahardjo P .................................. 369

- The course of facial canal in the temporal bone using three-dimensional reconstruction of micro CT images
  KohKS, Park SC, Lee E .................................................................. 370

- Age estimation by pulp size from dental radiograph
  Wahjuningsih E, Sarianoferni .......................................................... 371

- Medical imaging: study comparison between angiography and Intra Vascular Ultra Sound (IVUS) in their accuracy of imaging atherosclerosis in coronary artery
  Adrian R ................................................................................. 374

- Combined treatment of A1 receptor agonist (CPA) and ascorbic acid protects vulnerable neurons in the mouse hippocampus CA1, following ischemia-reperfusion
  Zamani M, Soleymani M, Mehdizadeh M, Nobakht M, Rasooli H, Alipanahzadeh H ...... 375
APLICATION DIRECT PULP CAPPING *Stolephorus insularis* CREAM TO DENTIN REPARATE

Sari RP*, Revianti S, Nugroho HK

Laboratory of Oral Biology, Faculty of dentistry, Hang Tuah University, Surabaya, Indonesia
*Corresponding author:rima.sari@yahoo.com

ABSTRACT

**Introduction:** Indonesia was known as maritime country, nearly two-thirds of the total area of Indonesia is the ocean. One marine products in Indonesia is anchovy. One species of anchovy which can be found in Indonesia is *Stolephorus insularis*. *Stolephorus insularis* contents calcium and flour which is very beneficial for dental health. The used of calcium in the fields of dentistry including could be Ca(OH)2 which can be use as a liner. Calcium contained in the liner material can support the activation of odontoblast, forming odontin or reparative dentin. In this study, flour *Stolephorus insularis*, used as a direct pulp capping material to the formation of reparative dentin. **Objective:** To examine the effect of paste *Stolephorus insularis* as direct pulp capping material toward formation of reparative dentin. **Methods and materials:** Twenty Wistar rats were used, treated with direct pulp capping on their mandibular first molar and divided two groups. K group as positive control group (the rats were treated with calcium hydroxide and the others (P group) were treated with the *Stolephorus insularis* extract. After 21 days, all rats from each group were sacrificed and prepared for histological examination. Reparative dentin were examined under a light microscope. Data was analyzed with Fisher’s Exact Test. **Result:** The result of this study showed that reparative dentin has been formed more in K group than P group. **Conclusion:** Application of flour *Stolephorus insularis* extract as direct pulp capping material can directly affect the formation of reparative dentin.

**Keywords:** flour *Stolephorus insularis* extract, calcium hydroxide, reparative dentin, direct pulp capping.

INTRODUCTION

Pulp capping is a treatment that is intended to protect the dental pulp tissue is slightly open (perforation) or which are still covered by a thin dentin through the provision of antiseptic medicine and sedatives in recovering pulp tissue vitality and function. The materials used for pulp capping known as liner.

Liner materials provided by a thin layer has the ability to close the dentin tubule and prevent the entry of acids or other destructive agents of restoration materials and increase the occurrence of mineralization to the addition of mineral deposits in dentinal tubule. To become a liner material on the treatment of pulp capping should be able to provide thermal protection and medication pulp, as well as electrical material mechanics, besides that meet criteria such as rapid setting time, have good compressive strength, and provide thermal insulator of pulp when applied with thickness 0.5 mm, and the pH between 9.2 to 11.7. There are two kinds of pulp capping treatment, treatment in indirect pulp capping and maintenance of pulp capping. Pulp capping was carried out on a vital tooth without inflammation.

Calcium hydroxide is one ingredient that is often used in the treatment of pulp capping in the treatment of pulp capping, calcium hydroxide is used as a liner material which in addition is intended to protect the dental pulp tissue is still slightly open or covered by a thin layer of dentin, as well as to stimulate the formation of reparative dentin. This is due to calcium contained in the liner material to support the activation of odontoblasts. With the provision of liner may also increase the hardness of teeth, this happens because of the effect of calcium ion release from the breakdown of Ca (OH)2 by water and tissue fluid from dentin. Calcium hydroxide as pulp capping material is chemically classified material with a pH of strong base. Calcium hydroxide with the chemical formula Ca (OH)2 when contact with a liquid / liquid separation then occur between the ions Ca2+ and OH-. Where ion Ca2+ / calcium ions play a role in the remineralization process. OH-ion / hydroxyl ion is one of the reasons why calcium hydroxide has a pH of alkali (base). Hydroxyl ions react into the free radical oxidants have anti-bacterial mechanism whereby these ions react strongly with various biomolecules.

Indonesia is known as a maritime country, which shaped the islands and nearly two-thirds of the total area of Indonesia is the ocean. Indonesia has abundant marine wealth, which is the source of food for one of them is fish. Fish habitat in tropical regions, therefore easy to find fish in almost all waters in Indonesia. These fish live in waters with depths between 0-50 m. Distribution of anchovy spread in the Indo-Pacific area in the northern part of the Indian Ocean (Gulf of Aden, to the east towards Burma) and the Western Indian Ocean (Gulf of Thailand, Java Sea, Hong Kong, Fujian and Taiwan island). Anchovy has a variety of types which is fish jeans (*Stolephorus insularis*).
Behind the small size, anchovy jeans store a lot of good benefits for the body. Among contains calcium which is very beneficial for dental health. Fluorine itself is an important element in preventing decay in the teeth. Fluorine can react with hydroxyapatite to form fluorapatite into fluoroapatite compounds that are resistant to acid atmosphere. Thus the tooth mineral becomes soluble and reduce the risk for decay.

Own fish processing variety, one of which is to be converted into fish meal. The process undertaken to convert fish into fish meal, among others, ranging from drying of the wet fish until blended and sifted so that the results are really smooth. In the process of making powder, organic and inorganic compounds don't have to be a problem if the fish is really fresh.

Based on the above assessment, it would be research on the influence of flour paste application Florispius insularis as direct pulp capping material on the formation of reparative dentin.

METHODS AND MATERIALS

This research was classified in the laboratory experimental research with post test study design-only group design. Sample studies using Rattus norvegicus strains wistar with female criteria, male gender, age 8-12 weeks, physical health was marked by the characteristics of clear eyes, shiny legs, active movements, and a bright red color (not mushy), and laboratory environment factors that qualify physical environment.

The sample size in this study was 20 Wistar rats were divided into 2 groups, control (C) and treatment (T) each group consisted of 10 rats. The instrument used was a round diamond bur, number 200 s, low-speed contra-angle, micromotor, small brushes, water spray, chip blower, probe, plastic filling instruments, glass paper, syringe, autoclave, temeph, stopwatch, a kitchen knife, spatula, oven, blender, Bekker glass, measuring cup, light microscope, tweezers, scalpel, hands cones, scissors. Materials consisting of ketamine, xylazine HCl, anchovy meal jeans (Stolephorus insularis), powder Ca(OH)₂, isotonic saline solution, alcohol 70%, neutral buffered formalin 10%, nitric acid 2%, paraffin, dyes hematoxylin-eosin, glass ionomer cement DI, cotton roll, cotton pellets, sterile cotton, litmus paper, object glass, cover glass, distilled water.

Research conducted at the Laboratory of Biochemistry Faculty of Medicine Airlangga University, Laboratory of Pathology Anatomical Dr Soetomo Hospital, Laboratory of Histology and Laboratory of chemical Department of University in Surabaya.

Before investigating, had been prepared anchovy fish meal in jeans that can be done through several processes of drying, namely Fish teri jeans (Stolephorus insularis) is placed over the temeph is still wet, then dried under the sun for 2 weeks to really dry, processing where anchovy jeans that have been dried and then sifted until smooth and then sifted with a sieve no. 1000, if still there are parts that do not pass the sieve, then sifted again and then sifted again so the results are powder.

Research procedure begins with anesthesia in mice by using a solution of ketamine (10%) of 1 mL mixed with 0.2 mL of Xylazine HCl (2%) are dissolved in 3.8 mL of isotonic saline solution. Each rat was unanaesthetized by intramuscular injection at a dose of 0.2 mL per 50 gram body weight.

The next stage of after rat has been anaesthetised class 1 cavity preparation mandibular first molars of Wistar rats by choosing a free dental caries. Furthermore, the tooth surface is cleaned with a small brush that have been given a 70% alcohol and dried by blowing air from the chip blower. After preparation was done using micromotor, low-speed contra-angle and round diamond bur was accompanied by water spray was sprayed from the syringe. Preparation was done only for diameter round diamond bur and depth only to the extent round diamond bur. Furthermore, with the double-curved roof perforated pulpal blood until you see the pulp in the cavity and the blood cleaned out cavity with a cotton pellet and washed with sterile distilled water and dried.

The procedure was followed by application of direct pulp capping. In group C rats, the application using the powder Ca(OH)₂ as much as 0.5 grams of which was mixed with 0.5 mL of isotonic saline solution. While in group P, 0.5 grams Stolephorus insularis flour mixed into 0.5 mL of isotonic saline solution that had been sterilized in the oven with moisture at 70°C for 30 minutes. The mixture is inserted into the cavity first mandibular molar teeth with the help of a plastic filling instrument up to a half tall cavities filled with these materials.

Cavity that has been carried further direct pulp capping filled using Fuji Glass Ionomer Cement IV, aided by plastic filling instrument.

After 21 days, rats were sacrificed by inserting rat into the glass chamber and poured ether into the maw, then mice cleared of soft tissue with the aid of scissors and hand scalp and then cut at the molar region by using scissors. Further pieces of the jaw is inserted into the fixation solution buffered formalin 10%.

Procedures of Histopathological anatomy (HPA) preparations manufacturing begins with first molar teeth fix pieces of lower jaw into a fixation solution of buffered formalin 10%. Furthermore teeth mineralisation was conducted into the solution of Nitric Acid 2% for 1 week, then put in paraffin, and cut serially performed using microtome (6 µm thickness and the pulp chamber should be fully visible) and performed with Hematoxylin-eosin staining, and then close with a cover glass on the specimen.
Observations were carried out with 100 times magnification to see any reparative dentin in the pulp chamber. Then the data obtained were analyzed by using statistical non-parametric Fisher's Exact Test.

**RESEARCH RESULTS**

In the research data obtained is known that post-treatment group pulp capping with the use of Ca(OH)₂ does not get any reparative dentin formation on day 21. While post-treatment of pulp capping using anchovy fish meal extract contains Steleophorus insularis got the reparative dentin formation by samples on day 21.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Reparative dentin</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTROL Ca(OH)₂</td>
<td>0</td>
</tr>
<tr>
<td>Steleophorus insularis cream</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 1. Tabulation of the results of the treatment groups CandP

<table>
<thead>
<tr>
<th>VARIABEL</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dentin Reparatif</td>
<td>0.043</td>
</tr>
</tbody>
</table>

Table 2. The result of Fisher's Exact Test group Cand P

From Table 2, it can be seen that the value of statistical significance test results of Fisher's Exact Test for 0.043. This means that in group P (flour extract Steleophorus insularis) gave more significant results in stimulating the formation of reparative dentin compared with group C (Ca(OH)₂).

**DISCUSSION**

In the results of research with direct capping of pulp treatment using Ca(OH)₂ as the control was found to obtain the formation of reparative dentin. This is caused due to the pH of Ca(OH)₂ was high (alkaline), which can cause necrosis of liquidation, especially in superficial layers of pulp. It was also in the process of healing, occurs tunnel defects in dentin bridge formation that will facilitate the entry of bacteria so that the slow process of healing.

Calcium hydroxide is the chemical formula Ca(OH)₂ is a material that has a strong alkaline pH. Ca(OH)₂ in contact with liquid or liquid will split into Ca²⁺ and OH⁻. Ca²⁺ ions in calcium hydroxide play a role in the process of remineralization, while the OH⁻ which makes the calcium hydroxide has a pH of alkaline. Hydroxyl ions into the free radical oxidants have anti-bacterial mechanism whereby these ions react strongly with several biomolecules. Lethal effects of hydroxyl ions on the bacterial cells might be due to several mechanisms such as the destruction of bacterial cytoplasmic membrane, denaturation of proteins, and DNA damage. Behind the excess, Ca(OH)₂ also has the disadvantage that where due to its pH is high (alkaline), it can cause necrosis of liquidation, especially in superficial layers of pulp, other than that during the process of healing, occurs tunnel defects in dentin bridge formation that facilitates entry of bacteria so that the slow process of healing.

In this research, the determination of calcium and phosphorus content of the extract powder using Ca level in the extract powder of 120 mg Steleophorus insularis while levels of phosphor was 11.1 mg. Making flour extract Steleophorus insularis used with the assumption that the content of organic compounds that exist compared with the manufacture of other dry form that can be done such as ash dosage forms. This is because the flour-making process not through the combustion process as in the manufacture of ash Steleophorus insularis. The content of organic compounds contained in the flour Steleophorus insularis such as proteins is needed by the human body. Proteins are needed in the formation of the cell - new cells, maintain, and replace the cells - the cells are damaged. Proteins also function to regulate water balance in cells and antibodies are an antidote to infective organisms. In addition, protein can increase calcium absorption. Increased calcium absorption can be helpful in stimulating the formation of dentin reparatif. The protein can increase the absorption of calcium known as calcium-binding proteins (kalbindin). This needs to be done further research on the content of the extract powder kalbindin Steleophorus insularis which helps in stimulating the formation of reparative dentin. From this research we can conclude that administration of anchovy paste flour extract can increase the amount of reparative dentin after pulp capping direct treatment.
REFERENCES


